

## CURRICULUM VITAE

**CATHY HUEY-HWA WU, Ph.D., ACM Fellow, IEEE Fellow, ISCB Fellow**

Unidel Edward G. Jefferson Chair in Engineering and Computer Science

Founding Director, Data Science Institute (DSI)

Founding Director, Center for Bioinformatics & Computational Biology (CBCB)

University of Delaware

### EXECUTIVE SUMMARY

#### Scholarship & Leadership

- **Field of Study:** Conducted Bioinformatics Data Science research for 30 years, contributing to foundational knowledge of bioinformatics, computational biology, and data science with broad impact to biomedicine
- **Research Citations:** Published >300 peer-reviewed publications, with >61,000 citation and h-index of 75 on Google Scholar; Recognized as a “Highly Cited Researcher” (top 1%) for 7 consecutive years (2014-2020)
- **Awards:** ISCB (International Society for Computational Biology) Fellow, 2023; IEEE (Institute of Electrical and Electronics Engineers) Fellow, 2022; ACM (Association for Computing Machinery) Fellow, 2021; AAIA (Asia-Pacific Artificial Intelligence Association) Fellow, 2021; Purdue Distinguished Agriculture Alumni Award, 2020
- **Grants and Team Science:** (1) Continuously funded since 1987 from federal and other agencies, totaling >80 grants and >\$60 million funding support for her lab, including ~\$10 million new grants in 2021-2028; (2) Led UD data science initiatives since 2018 to accelerate cross-campus collaborations and multi-institutional team science grant applications, resulting in grant awards totaling >\$20M and an NSF application pending review (“EPSCoR RII Track I: Delaware Sustainability Science and Policy Hub for A Circular Economy” [\$20M, Co-PI])
- **International Research Resource:** Co-founded the international UniProt Consortium in 2002, with continuous NIH funding through 2026 as MPI to provide a central hub of protein knowledge to advance biomedical sciences, with over 8 million pageviews monthly from a million unique sites worldwide
- **National Leadership and Boards:** Council of Councils Working Group for the Common Fund Data Ecosystem, NIH (2021-22); NIH Advisory Council, National Institute of General Medical Sciences (2017-21); IEEE/ACM TCBB Steering Committee (2018-21) and Associate Editor (2014-), ACM SIGBio Board of Directors (2010-), Board on Research Data and Information (BRDI), National Research Council (NRC) (2008-11)

#### Training & Mentoring

- **Graduate Programs:** (1) Founded the Center for Bioinformatics and Computational Biology (CBCB) in 2010 and serves as the Founding Director of Bioinformatics Data Science graduate programs, including MS in Bioinformatics and Computational Biology (2010), PhD in Bioinformatics Data Science (2012), Graduate Certificate in Bioinformatics (2012), Online Graduate Certificates in Applied Bioinformatics (2017) and in Biomedical Informatics and Data Science (2019), to train the next-generation of researchers at the interface of computational sciences and life sciences; (2) Brought together 13 Data Science-related degree and certificate programs and >70 data science-related courses across campus as the DSI Director; (3) Serve as MPI of NIH T32 training grant (2022-2027) for the Bioinformatics Data Science PhD program
- **Mentoring:** (1) Mentored >200 mentees throughout academic career – undergraduate/graduate students, post-graduate trainees, junior scientists, and young investigators who have received many awards and fellowships and have successful careers in academic, industry, and government organizations; (2) mentored a dozen resident faculty recruited through campus-wide data science clustering hiring as DSI Director
- **Diversity, Equity, and Inclusion:** (1) Women in Computing: helped launching the ACM-W (Women in Computing) chapter at UD, and co-hosted the Women in Bioinformatics panels at several annual ACM conferences; (2) A strong advocate for diversity, equity and inclusion, a mentor in the National Research Mentoring Network (NRMN), and has received training in Culturally Aware Mentoring

## OFFICE ADDRESS

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Center for Bioinformatics & Computational Biology: <https://bioinformatics.udel.edu/>  
Cathy Wu: <https://bioinformatics.udel.edu/people/cathy-wu-phd/>

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## EDUCATION

Institution	Degree	Date	Field
National Taiwan University, Taiwan	B.S.	1974-1978	Plant Pathology
Purdue University, W. Lafayette, IN	M.S.	1980-1982	Plant Pathology
Purdue University, W. Lafayette, IN	Ph.D.	1982-1984	Plant Pathology/Molecular Biology
Michigan State University, E. Lansing, MI	Postdoc.	1985-1986	Molecular Biology
University of Texas at Tyler, Tyler, TX	M.S.	1988-1989	Computer Science

## POSITIONS AND EMPLOYMENT

2018-Present	Founding Director, Data Science Institute (DSI), University of Delaware (UD), Newark, Delaware
2017-Present	Unidel Edward G. Jefferson Chair in Engineering and Computer Science; Founding Director, Online Graduate Certificate in Applied Bioinformatics (2017-Present) & Online Graduate Certificate in Biomedical Informatics and Data Science (2019-Present), UD
2013-Present	Affiliate Faculty, Institute of Financial Service Analytics (IFSA), UD
2012-Present	Founding Director, PhD Program in Bioinformatics and Systems Biology (renamed as PhD Program in Bioinformatics Data Science in 2021), UD
2010-Present	Founding Director, Master of Science (MS) Program in Bioinformatics and Computational Biology, Professional Science Master's (PSM) Program in Bioinformatics, and Graduate Certificate in Bioinformatics, UD
2010-Present	Professor, Biomedical Engineering Program, UD
2009-Present	Founding Director of Center for Bioinformatics & Computational Biology, UD
2009-Present	Edward G. Jefferson Chair of Bioinformatics and Computational Biology (2009-2017); Professor of Department of Computer and Information Sciences; Professor of Department of Biological Sciences; Fellow, Delaware Biotechnology Institute (DBI), UD
2008-2010	Founding Co-Director, Bioinformatics Track, M.S. Degree in Biochemistry and Molecular Biology, Georgetown University Medical Center (GUMC), Washington, DC
2002-Present	Adjunct Professor (2009-Present), Professor (2001-2008), Department of Oncology; Member, Lombardi Comprehensive Cancer Center, GUMC
2001-Present	Adjunct Professor (2009-Present), Professor (2001-2008), Department of Biochemistry and Molecular & Cellular Biology, GUMC
2001-Present	Director, Protein Information Resource (PIR), Georgetown University (2001-Present) and University of Delaware (2009-Present)
1999-2002	Director of Bioinformatics, Protein Information Resource (1999-2001), Board of Directors (1999-2002), Vice President (2000-2002), National Biomedical Research Foundation, Washington, DC
1990-1999	Professor (1998-1999), Associate Professor (1994-1998), Assistant Professor (1990-1994), Department of Epidemiology and Biomathematics, University of Texas Health Center at Tyler, Texas
1989-1994	Associate Professor (1994), Assistant Professor (1989-1994), Department of Computer Science, University of Texas at Tyler, Texas
1986-1987	Research Scientist, Department of Plant Pathology & Microbiology, Texas A&M University, Texas
1985-1986	Postdoctoral Fellow, MSU-DOE Plant Research Laboratory, Michigan State University (Advisor: Christopher R. Somerville, Member, National Academy of Sciences), Michigan
1980-1984	Graduate Research Assistant, Department of Botany & Plant Pathology, Purdue University, IN

## PROFESSIONAL APPOINTMENTS / HONORS / SOCIETIES

### Advisory Boards/Committees

2021-Present Board of Regents Comparative Genomics Resource Working Group, National Library of Medicine (NLM), NIH

2021-2022 Council of Councils (CoC) Working Group for the Common Fund Data Ecosystem, National Institutes of Health (NIH)

2020 Board of Scientific Counselors (Ad hoc member), National Library of Medicine (NLM), NIH

2019-Present External Advisory Committee, Center of Quantitative Biology COBRE (Centers of Biomedical Research Excellence), Geisel School of Medicine at Dartmouth, NH

2018-2021 Steering Committee, IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)

2017-2021 Advisory Council, NIGMS (National Institute of General Medical Sciences) (2017-2021); Search Committee, Division Director of BBCB (Biophysics, Biomedical Technology, and Computational Biosciences) (2020), NIGMS, NIH

2015-2022 Advisory Board, NIAID (National Institute of Allergy and Infectious Diseases) Bioinformatics Integration Support Contract (BISC), NIH

2014 External Scientific Panel, Library of Integrated Network-Based Cellular Signatures (LINCS), Common Funds program, NIH

2014 Ad hoc Member, Advisory Council, NIGMS (National Institute of General Medical Sciences), NIH

2013-2015 Informatics Advisory Committee, Joint Genome Institute (JGI), U.S. Department of Energy (DOE)

2012 External Advisory Panel, NHLBI Proteomics Program, National Heart, Lung, and Blood Institute (NHLBI), NIH

2010-Present Board of Directors, SIGBio (2010-Present), Distinguished Member (2017-2021), Fellow (2021-present), Association for Computing Machinery (ACM)

2010-2013 Scientific Advisory Board, Data-Intensive Academic Grid (DIAG)

2009-2010 NSF Advisory Committee for Cyberinfrastructure Task Force on Grand Challenges, National Science Foundation (NSF)

2008-2011 Board on Research Data and Information (BRDI), National Research Council (NRC)

2008-2011 U.S. National Committee for CODATA (Committee on Data for Science and Technology)

2008-2018 Board of Directors; Chair, Bioinformatics and Biostatistics Subcommittee of US HUPO Initiative and Executive Committee (2010-2015), US Human Proteome Organization (US HUPO)

2006-2010 TeraGrid Scientific Advisory Board, National Science Foundation (NSF)

2005-2014 Council (2012-2014; 2005-2008), Human Proteome Project (HPP) Working Group (2009-2014), Human Proteome Organization (HUPO)

2005-2015 Advisory Committee, Protein Data Bank (PDB)

2002-2013 Advisory Committee, Protein Structure Initiative, National Institute of General Medical Sciences (NIGMS), National Institutes of Health (NIH)

2002-2009 Advisory Board (Chair, 2005-2006), Emerging Information Technology Conference

2000-Present Board of Directors (2000-2004), Education Committee (2003-Present), Fellow (2023-present), International Society for Computational Biology (ISCB)

2000-2009 Advisory Board, Association of Chinese Bioinformaticians

2001-2005 Scientific Advisory Board, Silico Insights, Inc., Woburn, MA

2000-2002 Advisory Board of Directors, Data Unlimited International, Gaithersburg, MD

1998-2002 Scientific Advisory Board, D'Trends, Inc., San Ramon, CA

### **Awards / Honors**

- Fellow, International Society for Computational Biology (ISCB), 2023
- Fellow, Institute of Electrical and Electronics Engineers (IEEE), 2022
- Fellow, Association for Computing Machinery (ACM), 2021
- Fellow, Asia-Pacific Artificial Intelligence Association (AAIA), 2021
- Distinguished Agriculture Alumni Award, Purdue University, 2020

- Recognition of Service Award, Association for Computing Machinery (ACM), 2019
- National Advisory General Medical Sciences Council, NIH, 2017 (appointed by NIH Director)
- Distinguished Member, Association for Computing Machinery (ACM), 2017
- Senior Member, The Institute of Electrical and Electronics Engineers (IEEE), 2017
- Senior Member, International Society for Computational Biology (ISCB), 2016
- Recognized as a “Highly Cited Researcher” (top 1%) by Thomson Reuters/Clarivate Analytics, 2014, 2015, 2016, 2017, 2018, 2019, 2020
- Recognition of Service Award, Association for Computing Machinery (ACM), 2014
- Board of Directors, SIGBio, Association for Computing Machinery (ACM), 2010 (elected), 2015 (re-elected)
- Board of Directors, US Human Proteome Organization (USHUPO), 2011 (elected), 2014 (re-elected)
- Council, Human Proteome Organization (HUPO), 2012 (elected to a 3- year term)
- FIRST Award, R29 LM05524, National Library of Medicine, NIH, 1993-1999
- President's Academic Scholarship, University of Texas at Tyler, 1988
- Du Pont Graduate Student Award, Purdue University, 1983
- Book Coupon Award (top 5% of class), National Taiwan University, Taiwan 1975, 1977, 1978

### Editorial Boards

- Editorial Board, Current Opinion in Systems Biology, 2016-Present
- Associate Editor (2014-Present) and Steering Committee (2018-2021), IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB)
- Editorial Board, International Journal of Genomic Medicine, 2013-Present
- Editorial Board, Microbiome, 2012-Present
- Executive Editor, Journal of Proteomics and Bioinformatics, 2008-2013
- Editorial Board, “Science, Engineering, and Biology Informatics” SEBI book series (ISSN: 1793-3692), World Scientific, 2004-2014
- Editorial Board, Transactions of the Integrated Bio-medical Informatics and Enabling Technologies Symposium (TIBETS), 2003-2012

### Professional Societies

- American Association for the Advancement of Science (AAAS)
- American Medical Informatics Association (AMIA)
- Asia-Pacific Artificial Intelligence Association (AAIA)
- Association for Computing Machinery (ACM) [Fellow; SIGBio Board of Directors]
- Human Proteome Organization (HUPO) [former Council]
- Institute of Electrical and Electronics Engineers (IEEE) [Fellow]
- International Society for Biocuration (ISB)
- International Society for Computational Biology (ISCB) [Fellow; former Board of Directors]
- Sigma Xi, The Scientific Research Honor Society
- US Human Proteome Organization (US HUPO) [former Board of Directors]

### In the News /Profiles

- *UDaily* ([6/30/2023](#)): For the record: Cathy Wu named 2023 Fellow of the International Society for Computational Biology
- *UDaily* ([5/1/2023](#)): A Career Path Paved with Data: New UD training program prepares data scientists
- *Communications of the ACM* ([February 2022](#)): ACM Member News: At the Intersection of Computational Biology and Data Science
- *UDaily* ([9/1/2021](#)): Blue Hen stars: UD Magazine features stories of alumni excellence and expertise
- *UDaily* ([8/30/2021](#)): Surfing the Tidal Wave of Data: At the dawn of a new information age, Cathy Wu’s star keeps rising

- *UDaily* ([8/30/2021](#)): Helping Our Planet and Its People
- *UDMagazine* ([August 2021](#)): Surfing the Tidal Wave of Data
- *UDaily* ([2/18/2021](#)): Data science leader: Cathy Wu, director of UD's Data Science Institute, discusses the future of this fast-growing field
- *UDaily* ([11/18/2020](#)): Highly cited researchers: Seven UD professors named to 2020 global list
- *UDaily* ([11/20/2019](#)): Very influential researchers: Six UD professors rank in the top 1% cited by peers
- *UD Engineering News* ([10/2/2019](#)): A Major Computational Resource for Delaware
- *UDaily* ([8/16/2019](#)): \$23.5 million to expand Delaware's biomedical research pipeline: UD-led program funded by NIH and State of Delaware for another five years
- *UDaily* ([7/29/2019](#)): Help at your fingertips: New app designed for opioid users, loved ones, providers
- *UD Engineering News* ([3/1/2019](#)): Celebrating Women's History Month
- *UDaily* ([12/19/2018](#)): Highly Cited Researchers: Wu, Green, Brown and Janotti make list of top influencers
- *UDMagazine* ([December 2018](#)): A conversation with Cathy Wu
- *UDaily* ([9/7/2018](#)): A 'momentous day' for University of Delaware research: Launch of Data Science Institute adds major collaborative muscle
- *UDaily* ([4/3/2018](#)): UD announces new Data Science Institute and founding director
- *UDaily* ([3/27/2018](#)): Searching for the Big Picture: \$1.9 million NIH grant helps UD computer scientists make biomedical research easier to peruse
- *UDaily* ([3/8/2018](#)): Female engineering pioneers: Meet 21 women who made history in UD's College of Engineering
- *UDaily* ([2/1/2018](#)): Matchmaking for cancer care: New system matches genetic anomalies with precision medicine treatments
- *UDaily* ([12/1/2017](#)): Wu snags multiple honors: UD bioinformatics director is recognized among top researchers in her field
- *UDaily* ([8/2/2017](#)): UD teams get millions in NSF funding
- *UDaily* ([5/23/2017](#)): Biosciences big data: New online graduate certificate in applied bioinformatics launched
- *UDaily* ([2/24/2017](#)): For the Record: Cathy Wu is co-editor of a book
- *UDaily* ([1/10/2017](#)): Wu named Highly Cited Researcher
- *UDaily* ([8/29/2016](#)): Big data for better medicine: Researchers receive funding to facilitate translation of biomedical data
- *UDaily* ([5/28/2016](#)): Doctoral Hooding Convocation: Erin Crowgey Research Prize for her dissertation
- *UDaily* ([10/1/2015](#)): Bioinformatics research underpins development of precision medicine
- *UDaily* ([11/12/2015](#)): Women of research: New issue of University of Delaware Research magazine
- *UDaily* ([11/2/2015](#)): UD partnering on regional big data innovation hub
- *UDaily* ([10/28/2015](#)): Research provides insights into genetic basis of obesity
- *Youtube* ([10/27/2015](#)): Women of Research: Cathy Wu
- *UDaily* ([10/21/2014](#)): UD's Targett, Wu to present at Inspiring Women in STEM conference
- *UDaily* ([7/8/2014](#)): Three UD scientists among Thomson Reuters' 2014 Highly Cited Researchers
- *UDaily* ([1/6/2014](#)): Leadership of statewide biomedical research program announced
- *UDaily* ([12/12/2011](#)): UD-led research team awarded \$4.8 million in NSF, NIH funding for bioinformatics research
- *UDaily* ([4/13/2010](#)): UD launches Professional Science Master's programs in biotechnology, bioinformatics to meet workforce needs
- *UDaily* ([4/22/2009](#)): Cathy Wu delivers inaugural Jefferson Chair lecture at UD
- *UDaily* ([3/3/2009](#)): University welcomes Wu as new Jefferson Chair
- *The Scientist* ([10/15/2001](#)): Cathy Wu at the Crossroads: She saved the Protein Information Resource database and now aims to restore it to the world's best

## PROFESSIONAL SERVICES

### Conference Organizing Committees (>80)

1. Planning Committee, UD AI Symposium, University of Delaware, Newark, DE, September 25-26, 2023
2. Planning Committee, Delaware Data Science Symposium, University of Delaware, Newark, DE, September 22, 2023
3. Organizing Committee, Graduate Data Science and Analytics Open House, University of Delaware, Newark, DE, September 21, 2023
4. Session Co-Chair, Biomedical Data Science, North East Regional IDeA Conference, NERIC 2023, Wilmington, DE, August 15-17, 2023
5. Organizing Committee, Delaware DARWIN Computing Symposium, University of Delaware, Newark, DE, February 23, 2023
6. Organizing Committee, The 1<sup>st</sup> Artificial Intelligence Center of Excellence (AICoE) Workshop, University of Delaware, Newark, DE, January 26, 2023
7. Organizing Committee, NLM Curation at Scale Workshop 2022, National Library of Medicine, NIH, Bethesda, MD, March 28-30, 2022
8. Organizing Committee, Delaware DARWIN Computing Symposium, University of Delaware, Newark, DE, March 24, 2022
9. Organizing Committee, Delaware Data Science Symposium, University of Delaware, Newark, DE, November 17, 2021
10. Session Co-Chair, Computational Biology, Genomic Data Science, and Epidemiology, Virtual North East Regional IDeA Conference, v-NERIC 2021, August 16-18, 2021
11. Organizing Committee, DARWIN Computing Symposium, University of Delaware, Newark, DE, February 12, 2021
12. Steering Committee, Text Mining COSI track at ISMB 2020, Text Mining Community of Special Interest (COSI), July 13, 2020
13. Organizing Committee & Session Chair, Delaware Data Science DARWIN Computing Symposium, University of Delaware, Newark, DE, February 12, 2020
14. Planning Committee, Delaware Data Science Symposium, University of Delaware, Newark, DE, November 15, 2019
15. Organizing Committee & Session Chair, Delaware IDeAs Symposium, University of Delaware, Newark, DE, November 7, 2019
16. Scientific Advisory Committee, Biocuration-2019, The 12<sup>th</sup> Conference of the International Society for Biocuration, Cambridge, UK, April 7-10, 2019
17. Conference Co-Chair, 2018 ACM Conference on Bioinformatics, Computational Biology and Health Informatics (ACM BCB), Washington, DC, August 29-September 1, 2018
18. Scientific Committee and Session Chair, Biocuration-2018, The 11<sup>th</sup> Conference of the International Society for Biocuration, Shanghai, China, April 8-10, 2018
19. Steering Committee, The 6<sup>th</sup> Critical Assessment for Information Extraction in Biology (BioCreative VI) Workshop, Washington, DC, November, 2017
20. Organizer, Protein Ontology Workshop, Bar Harbor, ME, October 11-12, 2017
21. Planning Committee, Delaware Data Science Symposium, University of Delaware, Newark, DE, May 12, 2017
22. Program Committee, The 13<sup>th</sup> Annual US HUPO Conference, San Diego, CA, March, 2017
23. Organizer, Protein Ontology Workshop, Washington, DC, November 14-15, 2016
24. Steering Committee, The 5<sup>th</sup> Critical Assessment for Information Extraction in Biology (BioCreative V) Workshop, Sevilla, Spain, September 9-11, 2015
25. Scientific Committee, Biocuration-2015, The 8<sup>th</sup> Conference of the International Society for Biocuration, Beijing, China, April 23-26, 2015
26. Organizer, Protein Ontology Meeting, Washington, DC, June 18-19, 2014

27. Conference Co-Chair, Plant Protein Phosphorylation Symposium, University of Missouri, Columbia, MO, May 28-30, 2014.
28. Steering Committee, The 4<sup>th</sup> Critical Assessment for Information Extraction in Biology (BioCreative IV) Workshop, Bethesda, Maryland, October 7-9, 2013
29. Conference Co-Chair, 2013 ACM Conference on Bioinformatics, Computational Biology and Biomedicine (ACM BCB), Washington, DC, September 22-25, 2013
30. International Program Advisory Board, 2013 HUPO World Congress, Yokohama, Japan, September 14-18, 2013
31. Session Chair, Biocuration-2013, The Conference of the International Society for Biocuration, Cambridge, UK, April 7-10, 2013
32. Workshop Organizer, PIR Knowledge Mining Tools for Proteins, Complexes and PTMs, International Plant and Animal Genome (PAG-XXI) Conference, San Diego, CA, January 12-16, 2013
33. Program Committee/Session Chair, 2012 HUPO World Congress, Boston, MA, September 9-13, 2012
34. Conference Co-Chair, 2012 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Philadelphia, October 4-7, 2012
35. Program Committee, The 3<sup>rd</sup> International Conference on Biomedical Ontology (ICBO-2012), Graz, Austria, July 22-25, 2012
36. Workshop Organizer, Immunology Ontologies and Their Applications in Processing Clinical Data, Buffalo, NY, June 11-13, 2012
37. Organizing Committee, BioCreative-2012 Workshop on Interactive Text Mining in the Biocuration Workflow, Washington DC, April 4-5, 2012
38. Organizing Committee, Biocuration-2012, The Conference of the International Society for Biocuration, Washington DC, April 2-4, 2012
39. Workshop Organizer, PIR Knowledge Mining Tools for Proteins, Complexes and PTMs, International Plant and Animal Genome (PAG-XX) Conference, San Diego, CA, January 14-18, 2012
40. Organizer, Alzforum/Protein Ontology Meeting, Buffalo, NY on October 4-5, 2011
41. Panel Chair, ACM Conference on Bioinformatics, Computational Biology and Biomedicine (ACM-BCB 2011), Chicago, August 1-3, 2011
42. Program Committee, International Conference on Biomedical Ontology (ICBO 2011), Buffalo, New York, July 28-30, 2011
43. Organizer, NECC (North East Cyberinfrastructure Consortium) Genome Annotation Workshop, Newark, DE, May 23-27, 2011
44. Session Organizer, ABRF-2011: An International Symposium of the Association of Biomolecular Resource Facilities, San Antonio, TX, February 19-22, 2011
45. Chair, Steering Committee, The 3<sup>rd</sup> Critical Assessment for Information Extraction in Biology (BioCreative III) Workshop, Bethesda, Maryland, September 13-15, 2010
46. Area Chair, 2010 IEEE International Conference on Bioinformatics and Bioengineering (BIBE), Philadelphia, PA, May 31-June 3, 2010
47. Organizer, NECC (North East Cyberinfrastructure Consortium) Genome Annotation Workshop, Newark, DE, May 10-14, 2010
48. Organizer, The 3<sup>rd</sup> Annual Protein Ontology Meeting, Newark, DE, April 26-28, 2010
49. Workshop Co-Organizer, PIR (Protein Information Resource) Workshop on Text Mining for Database Curation, Plant and Animal Genome XVIII Conference, San Diego, CA, January 9-13, 2010
50. Program Committee Co-Chair, 2009 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Washington, DC, November 1-4, 2009
51. Chair, Steering Committee, International Symposium on Designing Microbial Research Commons, National Academy of Sciences, Washington, DC, October 8-9, 2009
52. Workshop Co-Organizer, Workshop on Literature Collection and Curation, The 3<sup>rd</sup> International Biocuration Conference, Berlin, Germany, April 16-19, 2009



53. Session Chair, Session on Databases and Systems Integration, The 5<sup>th</sup> Annual US HUPO Conference, San Diego, CA, February 22-25, 2009
54. Workshop Organizer, PIR (Protein Information Resource) Workshop on Text Mining for Database Curation, Plant and Animal Genome XVII Conference, San Diego, CA, January 10-14, 2009
55. Program Committee Vice Chair, 2008 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), Philadelphia, PA, November 7-9, 2008
56. Organizer, The 2<sup>nd</sup> Annual Protein Ontology Meeting, Washington, DC, November 18-20, 2008
57. Program Committee, The 16<sup>th</sup> Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Toronto, Canada, July 19-23, 2008
58. Session Organizer, Bioinformatics and Systems Biology, the 1<sup>st</sup> Annual EITC-Bio Workshop – Synergy of Bioinformatics and Biomedical Research, Princeton University, NJ, June 7, 2008
59. Co-Chair, Organizing Committee, The 4<sup>th</sup> Annual US HUPO Conference, Bethesda, MD, March 16-19, 2008
60. Workshop Organizer, Biodefense Functional and Structural Proteomics Workshop, The 4<sup>th</sup> Annual US HUPO Conference, Bethesda, MD, March 16-19, 2008
61. Organizer, The 1<sup>st</sup> Annual Protein Ontology Meeting, Washington, DC, December 3-4, 2007
62. Program Committee, The 15<sup>th</sup> Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Vienna, Austria, July 21-25, 2007
63. Session Organizer, Bioinformatics and Systems Biology, The 7<sup>th</sup> Annual Emerging Information And Technology Conference (EITC), Princeton University, NJ, August 9-10, 2007
64. Conference Scientific Committee, BioCreative (Critical Assessment of Information Extraction systems in Biology), Madrid, Spain, April 23-25, 2007
65. Workshop Organizer, NIAID Proteomics Workshop, The 3<sup>rd</sup> Annual US HUPO Conference, Seattle, WA, March 4-8, 2007
66. Program Committee, HUPO 5th Annual World Congress, Long Beach, CA, October 28-November 1, 2006
67. Meeting Organizer, The 3<sup>rd</sup> Annual Programmatic Meeting of the NIAID Biodefense Proteomic Research Program, Georgetown University, Washington, DC, May 16-17, 2006
68. Program Committee, the Pacific Symposium on Biocomputing (PSB), Maui, Hawaii, January 3-7, 2006
69. Conference Organizer, the Emerging Information Technology Conference (EITC), Princeton, NJ, October 29-30, 2004
70. Program Committee, The International Conference on Intelligent Systems for Molecular Biology (ISMB), Glasgow, Scotland, July 31-August 4, 2004
71. Organizer, Full-day workshop on Proteomic Bioinformatics, Georgetown University Medical Center, Washington, DC, June 17, 2003
72. Session Co-Chair, the Pacific Symposium on Biocomputing (PSB), Lihue, Hawaii, January 3-7, 2003
73. Conference Organizer, the Emerging Information Technology Conference (EITC), Princeton, NJ, November 1-2, 2002
74. Program Committee, the International Conference on Intelligent Systems for Molecular Biology (ISMB), Edmonton, Alberta, Canada, August 3-7, 2002
75. Program Committee, the 8th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (BIOKDD), Edmonton, Alberta, Canada, July 23-26, 2002
76. Program Committee, the International Conference on Computational Biology and Genome Informatics (CBGI), Research Triangle Park, NC, March 8-10, 2002
77. Session Co-Chair, the Pacific Symposium on Biocomputing (PSB), Kauai Marriott Resort and Beach Club, Hawaii, January 3-7, 2002
78. Program Committee, the 2<sup>nd</sup> IEEE International Symposium on Bio-Informatics & Biomedical Engineering (BIBE), Bethesda, MD, November 4-5, 2001
79. Program Committee, the International Workshop on Bioinformatics in Data Mining (BIOKDD), San Francisco, CA, August 26-29, 2001
80. Program Co-Chair, the Atlantic Symposium on Computational Biology and Genome Information Systems &

Technology (CBGI), Durham, NC, March 13-15, 2001

81. Organizer, invited session on Bioinformatics, the World Multiconference on Systemics, Cybernetics and Informatics (SCI), Orlando, FL, July 12-16, 1998
82. Organizer, Bioinformatics panel discussion (plenary session) and paper session, the Centennial Meeting of the Texas Academy of Science, Huntsville, TX, March 6-8, 1997
83. Organizing committee, the Third International Conference on Bioinformatics and Genome Research, Tallahassee, FL, June 1-4, 1994

#### **Study Sections / Grant Review Panels / Site Visit Teams / Academic Reviews (>80)**

1. Member, Special Emphasis Panel/Scientific Review Group ZDK1 GRB-J O1 DK22-018 Human Islet Research Network (HIRN) Pancreas Knowledgebase Program (PanKbase) U24 Review, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), NIH, Bethesda, MD, August 3, 2023
2. Member, Special Emphasis Panel/Scientific Review Group 2023/10 ZRG1 BBBT-T (55) R - BBBT: Biomedical Data Repositories and Knowledgebases, Center for Scientific Review (CSR), NIH, Bethesda, MD, June 28, 2023
3. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), May 20, 2021
4. Member, Academic Program Review Panel, Institute for Genomics and Bioinformatics, University of California, Irvine, March 8, 2021
5. Member, Bioinformatics Academic Program Review, Georgia Institute of Technology, February 8-9, 2021
6. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), February 3, 2021
7. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), September 17, 2020
8. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), May 21, 2020
9. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, January 16, 2020
10. Member, Master in Data Science Program Academic Program Review, University of San Francisco, San Francisco, CA, November 18-19, 2019
11. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, September 19, 2019
12. Member, Review Panel for Harnessing the Data Revolution (HDR) - Frameworks, Directorate for Computer and Information Science and Engineering (CISE), NSF, June 26-27, 2019
13. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, May 16-17, 2019
14. Member, Review Panel for Harnessing the Data Revolution (HDR): Data Science Corps (DSC), Directorate for Computer and Information Science and Engineering (CISE), NSF, May 9-10, 2019
15. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, January 24-25, 2019
16. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, September 13-14, 2018
17. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, May 11, 2018
18. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, January 18-19, 2018
19. Member, Triennial Reverse Site Review Panel for the Joint Genome Institute (JGI), Office of Biological and Environmental Research, U.S. Department of Energy (DOE), Bethesda, MD, December 5-8, 2017
20. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, September 14-15, 2017
21. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, Bethesda, MD, January 26-27, 2017
22. Member, Special Emphasis Panel/Scientific Review Group 2016/10 ZLM1 AP-T (01) 1 meeting, T15

- Informatics Training Grant Program, National Library of Medicine (NLM), NIH, Bethesda, MD, August 2016
23. Member, External Evaluation Site Visit Team, West Virginia-INBRE (IDeA Network of Biomedical Research Excellence), Marshall University, June 2016
  24. Member, Special Emphasis Panel/Scientific Review Group 2016/05 ZRG1 ETTN-D (02) M Emerging Technologies in Neuroscience, Center for Scientific Review (CSR), NIH, Bethesda, MD, March 2016
  25. Member, Bioinformatics Academic Program Review, Georgia Institute of Technology, February 2016
  26. Member, Year Eight Site Review Panel for the BioEnergy Science Center (BESC), Office of Biological and Environmental Research, U.S. Department of Energy (DOE), November 2015
  27. Member, Special Emphasis Panel/Scientific Review Group 2015/08 ZRG1 HDM-Z (52) R - Pediatric Research using Integrated Sensor Monitoring Systems (PRISMS): Informatics Platform Technologies for Asthma (U54), Center for Scientific Review (CSR), Bethesda, NIH, July 2015
  28. Member, Special Emphasis Panel/Scientific Review Group 2015/08 ZRG1 IMST-B (81), T32-T15 (supplement): Big Data to Knowledge (BD2K) Training Grant, Center for Scientific Review (CSR), Bethesda, NIH, June 2015
  29. Member, Special Emphasis Panel/Scientific Review Group 2015/10 ZRG1 VH-J (90) S - BD2K: Biomedical Data Science Training Coordination Center, Center for Scientific Review (CSR), Bethesda, NIH, June 2015
  30. Member, Special Emphasis Panel, ZGM1 PPBC-5 (KB), PharmGKB R24 Review, National Institute of General Medical Sciences (NIGMS), NIH, February 2015
  31. Member, Advisory Council, National Institute of General Medical Sciences (NIGMS), NIH, September 2014
  32. Member, Special Emphasis Panel, ZGM1 TWD-6 (C1), COBRE (P20) Review, National Institute of General Medical Sciences (NIGMS), NIH, July 2014
  33. Member, Special Emphasis Panel/Scientific Review Group 2014/05 ZRG1 BST-N (51) R - Big Data to Knowledge (BD2K) Centers of Excellence for Big Data Computing in the Biomedical Sciences, Center for Scientific Review (CSR), Bethesda, NIH, April 2014
  34. Member, Special Emphasis Panel/Scientific Review Group 2013/08 ZCA1 SRLB-V (O1) S - Early Stage and Advanced Development of Informatics Technology, National Cancer Institute (NCI), NIH, July 2013
  35. Member, Site Visit Panel, NCI Intramural Research Programs, Radiation Oncology Branch, National Cancer Institute (NCI), Bethesda, NIH, June 2013
  36. Member, Special Emphasis Panel, ZGM1 PPBC-5 LG, R24 Legacy Resources Review, National Institute of General Medical Sciences (NIGMS), NIH, March 2013
  37. Member, Year Five Site Review panel for the BioEnergy Science Center (BESC), Office of Biological and Environmental Research, U.S. Department of Energy (DOE), October 2012
  38. Member, External Advisory Panel for NHLBI (National Heart, Lung, and Blood Institute) Proteomics Program, Bethesda, NIH, August 2012
  39. Member, Special Emphasis Panel/Scientific Review Group 2012/01 BDMA, Biodata Management and Analysis Study Section, Center for Scientific Review (CSR), NIH, October 2011
  40. Member, Grant Review Panel, IMST 15 Small Business: Cell, Molecular, and Computational Biology, Center for Scientific Review (CSR), NIH, June 2011
  41. Member, Special Emphasis Panel/Scientific Review Group 2011/05 ZGM1 PPBC-4 (LR), NIGMS Legacy Community-Wide Scientific Resources, National Institute of General Medical Sciences (NIGMS), NIH, April 2011
  42. Member, Site Visit Panel, Biotechnology High Performance Computing Software Applications Institute (BHSOI), US Army Medical Research and Materiel Command (USAMRMC), Department of Defense (DoD), October 2010
  43. Members, Review Committee, RFA-DA-10-014 Systems Biology, HIV-AIDS, and Substance Abuse (R01) applications, National Institute of Drug Abuse (NIDA), NIH, July 2010
  44. *Ad hoc* reviewer, CISE Computing Research Infrastructure (CRI), NSF, April 2010
  45. *Ad hoc* reviewer, Postdoctoral Fellow of the Research Foundation - Flanders (Belgium) (FWO), February 2010

46. Member, Bio Medium panel, Division of Information and Intelligent Systems (IIS), Directorate for Computer and Information Science and Engineering (CISE), NSF, November 2009
47. Member, Special Emphasis Panel/Scientific Review Group 2010/01 ZLM1 ZH-C (J2), National Library Medicine (NLM), NIH, October 2009
48. Member, Special Emphasis Panel/Scientific Review Group 2009/10 ZGM1 CBCB-3 (BI), National Institute of General Medical Sciences (NIGMS), NIH, July 2009
49. *Ad hoc* reviewer, 2009/10 ZRG1 BST-M (58) R - RFA OD-09-003 Challenge Grants Panel 4, NIH, June 2009
50. Member, Special Emphasis Panel, Drug Docking and Screening Data Resource (U01), NIGMS, NIH, August 2008
51. Member, Special Emphasis Panel, Phase III clinical trial on Multicenter Trial to Study Efficacy of Propranolol in Severely Burned Patients (P01), NIGMS, NIH, August 2008
52. Member, Site Visit Team, New York Consortium on Membrane Protein Structure (NYCOMPS), NIGMS, NIH, New York, NY, May 2008
53. Member, Site Visit Team, Center for Eukaryotic Structural Genomics (CESG), NIGMS, NIH, Madison, WI, April 2008
54. Member, Site Visit Team, Protein Structure Initiative (PSI), National Institute of General Medical Sciences (NIGMS), NIH (3 PSI centers at New York, NY; Buffalo, NY; Piscataway, NJ), May 2007
55. Member, Site Visit Panel, ZRG1 BST-D (P41 grant), National Center for Research Resources (NCRR), NIH, San Francisco, CA, November 2006
56. Member, Special Emphasis Panel, Innovative Molecular Analysis Technology (IMAT), National Cancer Institute (NCI), NIH, October 2006
57. Member, Special Emphasis Panel, Clinical Proteomic Technology Assessment for Cancer (U24), National Cancer Institute (NCI), NIH, July 2006
58. Member, Special Emphasis Panel, T15 Informatics Training Grant Program, National Library of Medicine (NLM), NIH, May 2006
59. Frequent *Ad hoc* reviewer for Biological Databases and Informatics Program, Directorate for Biological Sciences, NSF, 2002-2006
60. Member, Special Emphasis Panel, E. coli Model Organism Resource Review, ZGM1 GDB-5 EC, National Institute of General Medical Sciences (NIGMS), NIH, December 2005
61. Member, CAREER Review Panel, Information & Intelligent Systems (IIS), Directorate for Computer and Information Science and Engineering (CISE), NSF, November 2005.
62. Member, Special Emphasis Panel, KinaseNET Program Project, Center for Scientific Review (CSR), NIH, March 2005
63. *Ad hoc* reviewer, Wellcome Trust Sanger Institute (WTSI), London, UK, March 2005
64. Member, Special Emphasis Panel, ZRG1 BST-D, Technology Centers for Networks and Pathways, CSR, NIH, July 2004
65. *Ad hoc* reviewer, IRG: ZDA1 SRC(99), NIDA Neuroproteomics Research Centers, National Institute on Drug Abuse (NIDA), NIH, July 2004
66. Member, Site Visit Team, Tomato Genome Sequencing Project, Plant Genome Research Program, Directorate for Biological Sciences, NSF, May 2004
67. *Ad hoc* reviewer, IRG: ZDA1 RXL-E(21), NIDA Neuroproteomics Research Centers, NIDA, NIH, March 2004
68. *Ad hoc* reviewer, Discovery Grant Program, Natural Sciences and Engineering Research Council (NSERC), Canada, January 2004
69. Member, Comparative Medicine Review Committee (CMRC), National Center for Research Resources (NCRR), NIH, June 2003
70. Member, Site Visit Team, Protein Data Bank (PDB), Biological Databases and Informatics (BDI) Program, Directorate for Biological Sciences, NSF, May 2003
71. Member, SSS-H (90), Computational Biology Study Section, CSR, NIH, February 2003
72. Frequent *Ad hoc* reviewer for Plant Genome Research Program, Directorate for Biological Sciences, NSF,

2002-2004

73. Member, SSS-E(01), Computational Biology Study Section, CSR, NIH, 2002
74. Member, Special Emphasis Panel, the National Research Program for Genomic Medicine, National Science Council, Taiwan, 2002
75. Member, Special Emphasis Panel, Biomedical Information Science and Technology Initiative (BISTI) Program, CSR, NIH, 2001
76. Member, Special Emphasis Panel, T15 Informatics Training Grant Program, National Library of Medicine (NLM), NIH, 2001
77. Member, Grant Review Panel, Microbial Genome Program, Department of Energy, 2001
78. Member, Grant Review Panel, Bioinformatics Post-doctoral Program, NSF, 2001
79. Member, Grant Review Panel, Biological Database and Informatics (BDI) Program, NSF, 1999-2000
80. Member, Site Visit Team, the *Arabidopsis* Functional Genomics Consortium, Division of Integrative Biology and Neurosciences, NSF, 2000
81. Reverse Site Visit Team, Plant Genome Research Program, NSF, 2000
82. Member, Grant Review Panel, Computational Biology Activities, Division of Biological Instrumentation and Resources, NSF, 1997
83. *Ad hoc* reviewer for Puerto Rico EPSCoR, 1995
84. Member, Grant Review Panel, Small Business Innovation Research (SBIR), the Division of Information, Robotics and Intelligent Systems, NSF, 1992
85. Member, Grant Review Panel, Special Project Program of Computational Biology Activities, Division of Biological Instrumentation and Resources, NSF, 1992

#### **INVITED LECTURES / PANELS (>200)**

1. Speaker, U.S. Department of Energy (DOE) Joint Genome Institute (JGI) 2023 Genomics of Energy & Environment Meeting, Berkeley, CA, August 21, 2023
2. Speaker, Health Day, The 29th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD-2023), Long Beach, CA, August 9, 2023
3. Keynote Speaker, Graduate College Convocation, University of Delaware, Newark, DE, May 26, 2023
4. Speaker, College of Agriculture, Science and Technology (CAST)/OSCAR Fall 2022 Seminar Series, Delaware State University, Dover, DE, November 10, 2022
5. Speaker, College of Engineering Brown Bag Seminar, University of Delaware, Newark, DE, October 20, 2022
6. Speaker, Research Community Connector, Delaware Biotechnology Institute, University of Delaware, Newark, DE, May 6, 2022
7. Speaker & Panel, Develop ME! Forum, Data Science Opportunities in Delaware, Delaware Department of Technology and Information (DTI), State of Delaware, DE, April 28, 2022
8. Speaker, Research Town Hall, University of Delaware, Newark, DE, November 15, 2021
9. Keynote, The Tenth International Conference on Bioinformatics and Biomedical Science (ICBBS 2021), October 29-31, 2021
10. Speaker, NIH STRIDES AWS Tech Talk - AWS Cloud Credits for Research, October 27, 2021
11. Speaker & Panel, MTBA (Midwest Taiwanese Biotechnology Association) Annual Symposium, Chicago, IL, September 18-19, 2021
12. Speaker, My Analytical Chemistry Story, ACS Fall 2021, American Chemical Society, August 23, 2021
13. Keynote, The Fifth International Conference on Biological Information and Biomedical Engineering (BIBE 2021), July 20-22, 2021
14. Speaker, Research Center Symposium, College of Engineering, University of Delaware, Newark, DE, April 30, 2021
15. Speaker, Distinguished Alum Seminar, Purdue University, West Lafayette, IN, March 19, 2021
16. Speaker & Panel, Biotech & Chemtech Symposium, New Castle County Chamber of Commerce Chamber of

Commerce, DE, February 25, 2021

17. Speaker & Panel, BioBreakfast, Delaware BioScience Association, Wilmington, DE, January 21, 2021
18. Speaker & Panel, Workshop on Knowledge Guided Machine Learning (KGML), NSF Harnessing the Data Revolution (HDR) program, August 20, 2020
19. Keynote, Text Mining Community of Special Interest (COSI), The Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), a virtual conference, July 13, 2020
20. Panel, COVID-19, University of Delaware, Newark, DE, June 23, 2020
21. Speaker, Nemours Cardiac Center, Nemours/Alfred I. duPont Hospital for Children, Wilmington, DE, May 19, 2020
22. Speaker, Brookhaven National Laboratory (BNL) Computational Science Initiative Seminar Series, Upton, NY, January 2020
23. Speaker, NIST (National Institute of Standards and Technology) Biomolecular Measurement Division Seminar Series, Gaithersburg, MD, January 21, 2020
24. Speaker, Data Science & Digital Agriculture Seminar Series, Purdue University, West Lafayette, IN, December 6, 2019
25. Speaker/Panelist, NERLSCD /MAD SSCI 19 (Northeast Regional Life Science Core Directors/Mid Atlantic Directors & Staff of Scientific Cores), Philadelphia, PA, November 8, 2019
26. Speaker, NIGMS Joint IDeA (Institutional Development Award) PI Meeting, NIH, Bethesda, MD, September 2019
27. Speaker, Neuroscience and Mathematics Education Workshop, University of Delaware, Newark, DE, September 13, 2019
28. Speaker, 2019 NorthEast Regional IDeA Conference (NERIC), Bretton Woods, NH, August 2019
29. Speaker, Junior Investigators Network (JIN), Delaware IDeA Programs, Newark, DE, June 20, 2019
30. Speaker, National Institute for Mathematical and Biological Synthesis (NIMBioS) Investigative Workshop Scientific Collaboration Enabled by High Performance Computing, Knoxville, TN, May 2019
31. Speaker, The 2019 Annual US HUPO (Human Proteome Organization) Conference, Bethesda, MD, March 2019
32. Speaker, The 6th Catholic University International Symposium on Medical Informatics, Korea Big Data Webinar, November 2018
33. Speaker, The 26th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Chicago, IL, July 2018
34. Speaker, National Center for Biotechnology Information, National Library of Medicine (NLM), NIH, Bethesda, MD, May 2018
35. Speaker, Quill and Grill Wilmington Club, Unidel Foundation, Wilmington, DE, May 2018
36. Speaker, 2018 EITA (Emerging Information and Technology Association) Healthcare Innovation and Entrepreneurship Workshop "Smart, Precision, and Preventive Medicine: Challenges, Opportunities, and Future Directions," New York, NY, April 2018
37. Keynote Speaker, The 11<sup>th</sup> Conference of the International Society for Biocuration (Biocuration-2018), Shanghai, China, April 2018
38. Speaker, EMBL Cancer Genomics Conference 2017, EMBL, Heidelberg, Germany, November 2017
39. Speaker, Nemours/Alfred I. duPont Hospital for Children, Wilmington, DE, October 2017
40. Speaker/Panelist, Health and Big Data Forum, University of Delaware, Newark, DE, September 2017
41. Speaker, NERIC (North East Regional IDeA Conference), Burlington, VT, August 2017
42. Speaker, Innovative Discoveries Series seminar, Christiana Care Health System, Wilmington, DE, June 2017
43. Speaker, BD2K-CCC (Big Data to Knowledge Centers Coordination Center) Webinar, June 2017
44. Speaker, LINCS-BD2K Systems Biology Data Science (SBDS) Symposium, Cincinnati, OH, May 2017
45. Speaker, The 2017 Annual US HUPO (Human Proteome Organization) Conference, San Diego, CA, March 2017
46. Speaker, International Darwin Day, University of Delaware, February 2017

47. Speaker, LINCS Data Science Research (DSR) Webinar, November 2016
48. Speaker/Panelist, Sustainability Session, NIH BD2K (Big Data to Knowledge) All Hands Meeting, Bethesda, MD, November 2016
49. Plenary Keynote Speaker, International Conference on Computational Advances in Bio and medical Sciences (ICCABS-2016), Georgia Institute of Technology, Atlanta, GA, October 2016
50. Speaker, Delaware-CTR (Clinical Translational Research Award) ACCEL Precision Medicine Retreat, Wilmington, DE, September 2016
51. Speaker, Frederick National Laboratory for Cancer Research, Frederick, MD, July 2016
52. Speaker, NHGRI Large Genomic Resources Meeting, National Human Genome Research Institute, NIH, Rockville, MD, May 2016
53. Speaker/Panelist, Innovations in Curation workshop, FORCE2016 Conference, Portland, OR, April 2016
54. Keynote Speaker, Biomedical Linked Annotation Hackathon (BLAH) Symposium, Mishima, Japan, November 2015
55. Speaker, The Role of Ontology in Big Cancer Data Workshop, National Cancer Institute, Bethesda, MD, May 2015
56. Panelist, NSF Workshop on Mass Spectrometry and Big Data Analysis, Arlington, VA, May 2015
57. Speaker, NIH Proteomics Interest Group Lecture, Bethesda, MD, April 2015
58. Presenter, UD Day on the Hill, Washington DC, March 2015
59. Speaker, Symposium on Data Enabled Research and Education, University of Rhode Island, Kingston, RI, January 2015
60. Panelist, Inspiring Women in Science & Technology (IWST) conference, Delaware BioScience Association, Wilmington, DE, October 2014
61. Speaker, RI-INBRE Seminar Series, University of Rhode Island, Kingston, RI, September 2014
62. Speaker, NIEHS-EPA Workshop for the Development of a Framework for Environmental Health Science Language, Raleigh, NC, September 2014
63. Speaker, INBRE PI-PC Meeting, National Institute of General Medical Sciences (NIGMS), Bethesda, MD, September 2014
64. Panelist, Clinical Study Data Sharing and Reuse Workshop, National Institute of Allergy and Infectious Diseases (NIAID), Bethesda, MD, September 2014
65. Speaker, Fifth Biennial National IDeA Symposium of Biomedical Research Excellence (NISBRE), Washington, DC, June 2014
66. Keynote Speaker, Advancing Computational Biology @ Howard University Symposium, Washington, DC, March 2014
67. Speaker, The 3rd International Conference on Proteomics & Bioinformatics (Proteomics-2013), Philadelphia, PA, July 2013
68. Speaker, The 6th Annual World protein and Peptide Conference (PepCon-2013), Suzhou, China, March 2013
69. Speaker and Mentor, Project Prometheus, Shantou University, China, February 2013
70. Speaker, The Second EITA-Bio Conference (EITA-Bio 2012), Princeton University, Princeton, NJ, October 2012
71. Speaker, Bioinformatics Colloquium, George Mason University, October 2012
72. Speaker, Georgetown Biomedical Informatics Symposium, Georgetown University, October 2012
73. Speaker, Nemours Center for Cancer and Blood Disorders, Research Strategy Retreat Nemours AI DuPont Children Hospital, Wilmington, DE, March 2012
74. Speaker, Workshop on Use of Ontologies for Organizing Plant and Animal Genomics Data, Plant and Animal Genome (PAG-XX) Conference, San Diego, CA, January 2012
75. Speaker, Workshop on PIR Knowledge Mining Tools for Proteins, Complexes and PTMs, PAG-XX Conference, San Diego, CA, January 2012
76. Speaker, AstraZeneca Pharmaceuticals, Wilmington, DE, January 2012

77. Speaker, Biochemistry Department Seminar, UMDNJ-New Jersey Medical School, Newark, NJ, January 2012
78. Speaker, MU Informatics Institute (MUII), University of Missouri, Columbia, MO, November 2011
79. Speaker, AlzForum/Protein Ontology Kick-Off Meeting, Buffalo, New York, October 2011
80. Panelist, Women in Bioinformatics Panel, 2011 ACM Conference on Bioinformatics, Computational Biology and Biomedicine (ACM-BCB), Chicago, IL, August 2011
81. Speaker, 4th Northeast Regional IDeA Meeting, Newport, RI, August 2011
82. Speaker, International Conference on Biomedical Ontology: ICBO 2011, Buffalo, New York, July 2011
83. Speaker, Digital Systems Seminar series, Department of Electrical and Computer Engineering, University of Delaware, April 2011
84. Speaker, The 7th Annual US HUPO (Human Proteome Organization) Conference, Raleigh, NC, March 2011
85. Speaker, ABRF-2011 (International Symposium of the Association of Biomolecular Resource Facilities), San Antonio, TX, February 2011
86. Panelist, Grand Challenges in Proteomics Workshop, National Science and Technology Council (NSTC), Gaithersburg, MD, February 2011
87. Speaker, Fraunhofer-CMB (Center for Molecular Biotechnology), Newark, DE, December 2010
88. Speaker, Department of Biological Sciences, University of Delaware, November 2010
89. Speaker, NIH Proteomics Interest Group (ProtIG), Bethesda, MD, October 2010
90. Plenary Speaker, NISBRE (National IDeA Symposium of Biomedical Research Excellence) Meeting, Washington, DC, June 2010
91. Panelist, International Critical Assessment of Functional Annotation Experiment (CAFAE), Crystal City, VA, May 2010
92. Speaker, DuPont, Wilmington, DE, April 2010
93. Speaker, Delaware INBRE Research Forum, Newark, DE, April 2010
94. Plenary Speaker, DOE Genomic Sciences Contractor-Grantee Workshop and Genomic Sciences Knowledgebase Workshop, Crystal City, VA, February 2010
95. Speaker, Protein Information Resource (PIR) Workshop on Text Mining for Database Curation, Plant and Animal Genome XVIII Conference, San Diego, CA, January 2010
96. Speaker, Protein Ontology workshop, Pacific Symposium of Biocomputing, The Big Island of Hawaii, January 2010
97. Speaker, Chemical Engineering Seminar Series, University of Delaware, December 2009
98. Speaker, American Statistical Association, Delaware Chapter, Newark, DE, November 2009
99. Speaker, Greater Philadelphia Bioinformatics Alliance (GPBA) Fall Retreat, Philadelphia, PA, November 2009
100. Speaker, Chemistry Biology Interface (CBI) Seminar Series, University of Delaware, November 2009
101. Speaker, Nemours Biomedical Research, Alfred I. duPont Hospital for Children, Wilmington, DE, May 2009
102. Speaker, American Society for Quality - ASQ509 Biomed/Biotech Special Interest Group Meeting, Rockville, MD, May 2009
103. Speaker, inaugural lecture as the Edward G. Jefferson Chair of Bioinformatics and Computational Biology, University of Delaware, April 2009
104. Speaker, Centers of Computational Biology, SRI International, Menlo Park, CA, April 2009
105. Speaker, The 5th Annual US HUPO Conference, San Diego, CA, February 2009
106. Keynote Speaker, The MidSouth Computational Biology and Bioinformatics Society (MCBIOS) Annual Meeting, Starkville, MS, February 2009
107. Speaker, Penn Bioinformatics Forum, University of Pennsylvania, Philadelphia, PA, February 2009
108. Speaker and Panelist, Computer Science Research Day, University of Delaware, Newark, DE, December 2008
109. Keynote Speaker, BioLINK SIG, The 16th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Toronto, Canada, July 2008



110. Speaker, Taiwanese American Science and Technology Association (TASTA), Washington, DC, July 2008
111. Plenary Speaker, The 1st Annual EITC-Bio Workshop "Synergy of Bioinformatics and Biomedical Research," Princeton, NJ, June 2008
112. Panelist, DOE Genomics: GTL (Genome-To-Life) Program, Systems Biology Network/ Knowledgebase Workshop, Bethesda, MD, May 2008
113. Panelist, Workshop on the Biological Annotation of Novel Proteins, University of California, San Diego, La Jolla, CA, March 2008
114. Speaker, Biodefense Functional and Structural Proteomics Workshop, The 4th Annual US HUPO Conference, Bethesda, MD, March 2008
115. Speaker, Bioinformatics and Computational Biology Seminar Series, University of Delaware, February 2008
116. Speaker, Imaging Science and Information Systems (ISIS) Center Seminar Series, Georgetown University, Washington, DC, February 2008
117. Speaker, The 1st Annual Protein Ontology Meeting, Washington, DC, December 2007
118. Speaker, GenMed Seminar Series, Research Center for Genetic Medicine, Children's National Medical Center, Washington, DC, October 2007
119. Panelist, Workshop on Information Extraction for Biomedical Informatics (IEBI), University of Pennsylvania, Philadelphia, PA, October 2007
120. Speaker, International Workshop on Genomic Databases (IWGD'07), Angra dos Reis, Rio de Janeiro, Brazil, August 2007
121. Keynote Speaker, The 7th Annual Emerging Information & Technology Conference (EITC-2007), Princeton, NJ, August
122. Speaker, Towards Systems Proteomics: A Symposium Sponsored by the NHLBI Proteomics Initiative, Boston, MA, April 2007
123. Speaker, NIAID Proteomics Workshop, 3rd Annual US Conference, Seattle, WA, March 2007
124. Keynote Speaker, IEEE 6th Symposium on Bioinformatics and Bioengineering (BIBE), Washington, DC, October 2006
125. State-of-the-Art Speaker, HUPO World Congress, Long Beach, CA, October 2006
126. Speaker, Swiss-Prot20 Scientific Symposium, Fortaleza, Brazil, July 2006
127. Speaker, HUPO Scientific Meeting, Montreal, Canada, July 2006
128. Panelist, Workshop for a Plant Science Synthesis Center, NSF, Arlington, VA, October 2005
129. Speaker, Taiwanese American Science and Technology Association, Gaithersburg, MD, October 2005
130. Speaker, Intercampus Workshop Series, Georgetown University, Washington, DC, September 2005
131. Speaker, Keystone Symposium: Proteomics and Bioinformatics, Keystone, CO, April 2005
132. Speaker, School of Computational Sciences Colloquium, George Mason University, Fairfax, VA, March 2005
133. Lecturer, Course - BIOC 237 Fundamentals of Proteomics, George Washington University, Washington, DC, March 2005
134. Speaker, Advanced Research Computing (ARC) Seminar Series, Georgetown University, Washington, DC, December 2004
135. Speaker, GMU Bioinformatics Colloquium, George Mason University, Manassas, VA, November 2004
136. Speaker and Panelist, The Society for Neuroscience 34th Annual Meeting, Human Brain Project Satellite Symposium: Brain Maps and Systems Biology, San Diego, CA, October 2004
137. Speaker, Biology Department Seminar Series, Georgetown University, Washington, DC, October 2004
138. Speaker, PDB Symposium: Database Challenges in Biology, Rockville, MD, September 2004
139. Keynote Speaker, The Third Annual Great Lakes Bioinformatics Retreat, Hartland, MI, August 2004
140. Keynote Speaker, The First Annual Indiana Bioinformatics Conference, Indiana University School of Medicine, Indiana, May 2004
141. Panelist, Community Workshop on Long-Lived Data Collections, National Science Board, Arlington, VA, March 2004
142. Lecturer, DIMACS workshop in Data Mining Techniques in Bioinformatics, Rutgers University, Piscataway,

New Jersey, October 2003

143. Lecturer, Distinguished Lecture Series in Bioinformatics and Computational Biology, University of Maryland, College Park, MD, October 2003
144. Keynote Speaker, Integrated Biomedical Informatics and Enabling Technologies (IBET), Pasquerilla Conference Center, Johnstown, PA, August
145. Speaker and Panelist, DOE Genomes to Life (GTL) Data Infrastructure workshop in Biological Data Integration, Gaithersburg, MD, July 2003
146. Speaker, Computational Biology Center, IBM Thomas J Watson Research Center, Yorktown Heights, NY, January 2003
147. Speaker and Panelist, NINDS workshop in Proteomics in the Neurosciences, Washington, DC, December 2002
148. Speaker, Feist-Weiller Cancer Center, Louisiana State University Health Sciences Center, Shreveport, LA, November 2002
149. Keynote Speaker, The Second Annual Emerging Information Technology Conference (EITC), Princeton, NJ, November 2002
150. Speaker and Panelist, The 2002 Virginia Biotechnology Summit and Governor's Conference on Technology Transfer and University Research (VABIO-2002), McLean, VA, October 2002
151. Lecturer, LRRI Symposium on Molecular Approaches for Early Diagnosis and Treatment of Respiratory Disease, Santa Fe, NM, October 2002
152. Director and Lecturer, Full-day workshop on Proteomic Bioinformatics, Tri-Annual NIH proteomics course, October 2002
153. Speaker, Symposium on Biomedical Technology Development, Rockville, MD, September 2002
154. Speaker, The 19th Annual meeting of the Mid-Atlantic Plant Molecular Biology Society (MAPMBS), Beltsville, MD, August 2002
155. Speaker and International Delegate, The Second Chinese Conference on Bioinformatics (CCB02), Beijing, China, June 2002
156. Lecturer, Association for Research in Vision and Ophthalmology (ARVO) Meeting, Ft. Lauderdale, FL, May 2002
157. Speaker, Conference on Proteomics - The New Frontiers, University of Delaware, Newark, DE, March 2002
158. Director and Lecturer, Full-day workshop on Proteomic Bioinformatics, Tri-Annual NIH proteomics course, March 2002
159. Speaker, Molecular and Cellular Biology, Medical College of Ohio, Toledo, OH, November 2001
160. Keynote Speaker, IEEE International Symposium on Bio-Informatics & Biomedical Engineering, Bethesda, MD, November 2001
161. Speaker, School of Computational Sciences, George Mason University, Manassas, VA, October 2001
162. Lecturer, Three one-hour lectures, European Science Foundation Training Course in Functional Genomics: Curation of Databases in Molecular Biology, France, October 2001
163. Keynote Speaker, SIAC 2001-Bioinformatics and Data Mining, Wright State University, Dayton, OH, August 2001
164. Speaker, The Information Technology Research Institute, Wright State University, Dayton, OH, August 2001
165. Speaker, TSMC Conference in Bioinformatics, National Chiao Tung University, Taiwan, August 2001
166. Lecturer, Three one-hour lectures, the Summer Institute on Bioinformatics, Academia Sinica, Taiwan, August 2001
167. Lecturer, Half-day bioinformatics tutorial, the International Conference on Intelligent Systems for Molecular Biology (ISMB-2001), Copenhagen, Denmark, July 2001
168. Speaker, CHI Beyond Genomics 2001 - Proteomics Conference, San Francisco, CA, June 2001
169. Speaker, Cambridge Interpro Workshop, Sanger Center, Hinxton, United Kingdom, June 2001
170. Speaker, GCG/MSI Bioinformatics Seminar at the Walter Reed Army Institute of Research, Washington,

DC, May 2001

171. Speaker and Panelist, Protein Sequence Database Workshop, NIH (NLM, NHGRI, NIGMS), Bethesda, MD, May 2001
172. Speaker, Protein Data Bank, Rutgers University, Piscataway, NJ, April 2001
173. Speaker, John Wiley & Sons, Inc., New York, NY, April
174. Speaker, Center for Biophysical Sciences & Engineering, University of Alabama at Birmingham, Birmingham, AL, March 2001
175. Plenary Speaker, Atlantic Symposium on Computational Biology and Genome Information Systems & Technology (CBGI 2001), Durham, NC, March 2001
176. Speaker, Department of Physiology and Biophysics, Georgetown University Medical Center, Washington, DC, March 2001
177. Speaker, Delaware Biotechnology Institute, University of Delaware, Newark, DE, December 2000
178. Speaker, NCI-FCRDC Advanced Biomedical Computing Center, Fredrick, MD, November 2000
179. Lecturer, Grand Rounds lectures, University of Texas Health Center at Tyler, Tyler, TX, November 2000
180. Plenary Speaker and Panelist, International Medical Informatics Symposium, Taiwan, November 2000
181. Speaker, Academia Sinica, Taiwan, November 2000
182. Speaker, National Taiwan University, Taiwan, November 2000
183. Speaker, National Health Research Institute, Taiwan, November 2000
184. Speaker, National Chiao Tung University, Taiwan, November 2000
185. Lecturer, Two-day Bioinformatics Workshop, National Yang Ming University, Taiwan, October 2000
186. Best Poster Presentation, MPSA 2000 (Methods of Protein Structure and Analysis), Charlottesville, VA, September 2000
187. Speaker, The Institute for Genome Research (TIGR), Rockville, MD, July 2000
188. Speaker, Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT, June 2000
189. Speaker, Celera Genomics, Rockville, MD, July 1999
190. Speaker, International Bioinformatics and Genome Research Conference, San Francisco, CA, June 1999
191. Speaker and Panelist, NIGMS Structural Genomics Targets Workshop, National Institutes of Health, Bethesda, MD, February 1999
192. Speaker, Protein Information Resource, National Biomedical Research Foundation, Washington, DC, May 1998
193. Speaker, Lilly Research Lab., Eli Lilly and Company, Indianapolis, IN, January 1998
194. Speaker and Panelist, Challenges in Annotating Genomes Workshop at Pacific Symposium on Biocomputing, Maui, Hawaii, January 1998
195. Speaker, University of Texas Health Science Center at Houston, June 1997
196. Speaker, Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX, June
197. Speaker, The Centennial Meeting of the Texas Academy of Science, Huntsville, TX, March 1997
198. Speaker, Protein Information Resource, National Biomedical Research Foundation, Washington, DC, May 1996
199. Speaker, Department of Chemistry, Stephen A. Austin University, Nacogdoches, TX, October 1995
200. Speaker, Molecular Informatics Group, Baylor College of Medicine, Houston, TX, April 1995
201. Speaker, Department of Computer Science, University of Tennessee, Knoxville, TN, October 1994
202. Speaker, Department of Computer Science, University of North Texas, Denton, TX, July 1994
203. Speaker, The Third International Conference on Bioinformatics and Genome Research, Tallahassee, Florida, June 1994
204. Speaker, Baylor College of Medicine, Houston, TX, May 1994
205. Speaker, Cray Symposium, Austin, TX, May 1994
206. Speaker, Workshop on Computational Neuroscience, Austin, TX, May 1993
207. Speaker and Panelist, The 2nd International Workshop on Open Problems in Computational Molecular Biology, Telluride, CO, July 1992

208. Speaker, The Second International Conference on Bioinformatics, Supercomputing and Complex Genome Analysis, St. Petersburg, FL, June 1992

## **UNIVERSITY SERVICE**

### **University of Delaware**

1. Review Committee, Dean of the College of Engineering, UD, 2023
2. Dossier Committee for Promotion, Department of Biological Sciences, UD, 2023
3. External Advisory Board, NIH T32 Chemistry-Biology Interface (CBI) Predoctoral Training Program, UD, 2023-Present
4. Research Council, Research Office, UD, 2022-Present
5. Chair, Internal Advisory Committee, NIH S10 Shared Instrumentation Grant, the Biomedical Data Storage Resource (BioStore), UD, 2022-Present
6. Co-Chair, Provost Search Advisory Committee, University of Delaware, 2021-2022
7. Co-Chair, Search Committee, Computer & Information Sciences Department Chair, College of Engineering, 2021-2022
8. Search Committee, DE-INBRE (IDeA Network of Biomedical Research Excellence) Principal Investigator, University of Delaware, 2021
9. Chair, Search Committee, Delaware Environmental Institute (DENIN) Director, University of Delaware, 2021
10. Advisory Committee to Dean, Named Professors Committee, College of Engineering, 2020-2022
11. Co-Chair, Search Committee, Computer & Information Sciences Department Chair, College of Engineering, 2020-2021
12. Data Coordination Committee, Clinical and Translational Research Task Force, Delaware CTR ACCEL Program, 2020-2021
13. Reopening Steering Committee, University of Delaware, 2020
14. Guiding Coalition Group, College of Engineering, 2020
15. Commission, Engineering-Driven Healthcare, College of Engineering, 2020
16. Research Council, University of Delaware, 2019-Present
17. Search Committee, Dean of Graduate College, 2019-2020
18. Nomination Review Committee, JPMC Faculty Fellows, 2019
19. Co-Chair, College of Engineering Dean Search Committee, 2017-2018
20. Chair of "Applications" Subcommittee, Data Science Faculty Search Committee, 2017-2018
21. Search Committee, Vice President for Information Technologies, University of Delaware, 2017
22. Faculty Search Committee, Department of Biological Sciences, 2016-2017
23. Executive Council for Diversity, University of Delaware, 2014-2019
24. Research Misconduct Inquiry Committee, University of Delaware, 2014-2015
25. Task Force on Research Data Security, University of Delaware, 2014-2015
26. Faculty Search Committee, Department of Biological Sciences, 2014
27. Scientific Advisory Board, Virome program, University of Delaware, 2014-Present
28. Internal Advisory Committee, Nemours COBRE - The Delaware Comprehensive Sickle Cell Research Center, 2014-Present
29. Nomination Review Committee, JPMC Faculty Fellows and Ph.D. Program Launch Leaders, Institute for Financial Services Analytics (IFSA), 2013
30. Search Committee, Unidel Howard E. Cosgrove Chair in the Environment, 2013
31. Nomination Review Committee of Named Professors in Mathematical Sciences, College of Arts & Sciences, 2013
32. Review Committee, Irma Ayers Chair in Human Services, University of Delaware, 2013
33. IGERT-SBE2 Executive Committee and Academic Program Committee, 2012-2019

34. Outstanding Junior Faculty Award Committee, College of Engineering, 2012-2021
35. Chair, Program Committee, PhD Program in Bioinformatics and Systems Biology (renamed Bioinformatics Data Science in 2020), 2012-Present
36. Search Committee, Dean of the College of Engineering, 2012-2013
37. Nomination Review Committee of Named Professors, College of Arts & Sciences, 2011-2012
38. Chair, Steering Committee, Bioinformatics Network of Delaware (BiND), Delaware INBRE, 2011-2016
39. Chair, Program Committee, Master's Program in Bioinformatics and Computational Biology, 2010-Present
40. Chair, Steering Committee, Center for Bioinformatics and Computational Biology, 2009-Present
41. Management Team (Member 2009-2013, Chair 2014-2021), Delaware INBRE (IDeA Networks of Biomedical Research Excellence)
42. Director, Bioinformatics Core Facility, University of Delaware, 2009-2016
43. DENIN Council of Fellows, Delaware Environmental Institute (DENIN), 2009-2016
44. Search Committee, Howard E. Cosgrove Chair in Environment, University of Delaware, 2010-2012
45. Statistics Task Force, University of Delaware, 2010-2011
46. Entrepreneurship Program Steering Committee, College of Engineering, 2010-2011
47. Search Committee, Dean of the Lerner College of Business and Economics, 2010-2011
48. Strategic Planning Committee, College of Arts & Sciences, 2010-2011
49. Chair, Faculty Search Committee, Bioinformatics and Computation Biology, University of Delaware, 2009-2011
50. Research Computing Task Force, University of Delaware, 2009-2011
51. Graduate Special Recruitment Committee, Department of Computer & Information Sciences, University of Delaware, 2009-2010

### **Georgetown University**

1. Georgetown Database Of Cancer (G-DOC) Project Advisory Committee, Georgetown University Medical Center (GUMC), 2008-2009
2. Member, Medical School Clinical Informatics Committee, GUMC, 2007-2009
3. Member, Systems Medicine Curriculum Committee, GUMC, 2007-2009
4. Member, Task Force on Computational and Systems Biology, Georgetown University (GU), 2007-2009
5. Member, Committee on Appointments and Promotions, GUMC, 2005-2009
6. Advisor, Advance Research Computing, University Information System, GU, 2002-2009
7. Member, Research Committee (Chaired by Dean, Research and Translational Science) and Shared Resources and Infrastructure Subcommittee, GUMC, 2002-2005
8. Member, Task force, Virginia Tech Drug Development Program, GUMC, 2004
9. Member, Committee for MS Computational Biosciences degree program, GU, 2002-2004
10. Co-Chair, Task Force for Bioinformatics, Statistics, and Computing (Commissioned by Dean, Graduate School of Arts and Sciences), GU, 2002 [Delivered "Task Force Report on Bioinformatics, Statistics, and Computing"]
11. Member, Science Committee (Chaired by Provost), GU, 2002
12. Member, GU delegate to Virginia Tech for exploring strategic alliance, 2001
13. Member, Bioinformatics and Biostatistics Faculty Search Committee, Lombardi Comprehensive Cancer Center, GUMC, 2003-2004
14. Member, Bioinformatics Working Group, Lombardi Comprehensive Cancer Center, GUMC, 2001-2009

### **TEACHING**

#### **Degree Programs Developed**

**University of Delaware**

<https://bioinformatics.udel.edu/Education/>

Online Graduate Certificate program launched in Fall 2019  
 Online Graduate Certificate in Biomedical Informatics & Data Science  
 Online Graduate Certificate program launched in Fall 2017  
 Online Graduate Certificate in Applied Bioinformatics  
 PhD program launched in Fall 2012, Achieved Permanent Status in 2019  
 PhD program in Bioinformatics and Systems Biology  
 (renamed as PhD program in Bioinformatics Data Science in 2020)  
 Master's programs launched in Fall 2010, Achieved Permanent Status in 2017  
 Master of Science (MS) Program in Bioinformatics and Computational Biology  
 Computational Sciences Concentration  
 Life Sciences Concentration  
 Professional Science Master's (PSM) Program in Bioinformatics  
 Computational Sciences Concentration  
 Life Sciences Concentration  
 Graduate Certificate in Bioinformatics  
 Computational Sciences Concentration  
 Life Sciences Concentration

**Georgetown University**

<https://bioinformatics.georgetown.edu/>

Launched in Fall 2008

Master of Science (MS) Program in Biochemistry & Molecular Biology - Bioinformatics Track

**Courses Taught**

**University of Delaware**

Year	Course No	Course Title	Role
2017 Fall	BINF 644	Bioinformatics	Course Director
2017 Spring	BINF 694	Systems Biology I	Course Director
2016 Fall	BINF 644	Bioinformatics	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2015 Spring	BINF 694	Systems Biology I	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2014 Fall	BINF 644	Bioinformatics	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2014 Spring	BINF 694	Systems Biology I	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2013 Fall	BINF 644	Bioinformatics	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2013 Spring	BINF 694	Systems Biology I	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2012 Fall	BINF 667	Bioinformatics	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2012 Spring	BINF 667	Systems Biology I	Course Director
	BINF 865	Bioinformatics Seminar	Course Director
2011 Fall	BINF 865	Bioinformatics Seminar	Course Director
2011 Spring	BINF 865	Bioinformatics Seminar	Course Director

**Georgetown University**

Year	Course No	Course Title	Role
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2006-2007	BCHB 521	Bioinformatics	Course Director
2005-2006	BCHB 521	Bioinformatics	Course Director
2004-2005	BCHB 621	Advanced Bioinformatics	Course Director
	BCHB 531/2	Medical Biochemistry	Lectures on bioinformatics
2003-2004	BCHB 521	Bioinformatics	Course Co-Director
2002-2003	BCHB 521	Bioinformatics	Course Co-Director
2001-2002	BCHB 521	Bioinformatics	Course Co-Director
2000-2001	BCHB 521	Bioinformatics	Course Co-Director
1999-2000	BCHB 520	Molecular Biology & Bioinformatics	Lectures on bioinformatics

#### University of Texas at Tyler

Year	Course No	Course Title	Role
1993-1994	COSC 5330-01	Operating Systems	Course Director
	COSC 3311-01	Fortran Programming	Course Director
1992-1993	COSC 5330-81	Operating Systems	Course Director
	COSC 5360-01	Information Structures	Course Director
	COSC 5360-81	Information Structures	Course Director
1991-1992	COSC 5330-81	Operating Systems	Course Director
	COSC 4330-01	Programming Languages	Course Director
	COSC 5360-81	Information Structures	Course Director
	COSC 5330-01	Operating Systems	Course Director
1990-1991	COSC 5308-81	Computing Software	Course Director
	COSC 3308-02	Personal Computing	Course Director
	COSC 5360-81	Information Structures	Course Director
	COSC 3309-01	Information System Software	Course Director
1989-1990	COSC 3308-01	Personal Computing	Course Director
	COSC 3308-02	Personal Computing	Course Director
	COSC 3309-02	Information System Software	Course Director
	COSC 5330-81	Operating Systems	Course Director
	COSC 3308-02	Personal Computing	Course Director
	COSC 3350-01	RPG Programming	Course Director
	COSC 5360-81	Information Structures	Course Director
	COSC 3309-01	Information System Software	Course Director

#### MENTORING

##### Students, Trainees, Research Scientists and Faculty Mentored (>200)

University of Delaware (102), Georgetown University (62), University of Texas/Health Center at Tyler (57)

##### University of Delaware (102 Mentees)

- Research Faculty (8)
- Postdoctoral/Postmasters Research Mentees (5)
- PhD Dissertation Advisees (19: 10 CIS, 9 CBCB)
- MS Thesis/Internship Advisees (18: 6 CIS, 12 CBCB)
- PhD Dissertation/MS Thesis Committee (34)
- Independent Studies/Rotations/Summer Scholars (11)
- Visiting Scholars/Interns (7)

1. Research Faculty Mentored in the Department of Computer and Information Sciences (CIS) and Center for

## Bioinformatics and Computational Biology (CBCB)

- 1) Dr. Hongzhan Huang: Research Associate Professor (2009-present)
  - 2) Dr. Cecilia Arighi: Research Assistant Professor (2009-2012), Research Associate Professor (2012-present)
  - 3) Dr. Chuming Chen: Research Assistant Professor (2009-2018) , Research Associate Professor (2018-present)
  - 4) Dr. Natalia Roberts: Research Assistant Professor (2009-2011)
  - 5) Dr. Shawn Polson: Research Assistant Professor (2010-2017), Research Associate Professor (2017-present) [Director of CBCB Bioinformatics Core and Director of BiND, 2016]
  - 6) Dr. Manabu Torii: Research Assistant Professor (2011-2014) [Scientist, Medical Informatics at Kaiser Permanente]
  - 7) Dr. John Garavelli: Adjunct Professor (2011-2020)
  - 8) Dr. Huseyin Serdar Kuyuk, Adjunct Faculty (2020-present)
2. Research Trainee Mentored in the Department of Computer and Information Sciences (CIS) and Center for Bioinformatics and Computational Biology (CBCB)
    - 1) Dr. Jules Nchoutmboube, NIH Post-Master Trainee (2009-2010) [PhD, University of Maryland, 2016; MRL Postdoctoral Scientist, Merck 2016-2019; Scientist/Study Manager, BioReliance]
    - 2) Dr. Qinghua Wang: Postdoctoral Research Associate (2010-2013); Bioinformatics Scientist (2013-2023)
    - 3) Dr. Catalina Oana Tudor: Postdoctoral Research Associate (2011-2013) [Bioinformatics Scientist, UD; Chief Software Engineer & Co-Founder, Noveon Magnetics]
    - 4) Dr. Jennifer Wyffels: NIH Re-Entry Postdoctoral Research Associate (2012-2014) [Bioinformatics Scientist, UD]
    - 5) Dr. Karen Ross: NIH Re-Entry Postdoctoral Research Associate (2012-2015) [Assistant Professor (2015-2022), Associate Professor (2022-present), Medical Education, Georgetown University]
3. Graduate Students Mentored in the Department of Computer and Information Sciences
    - Ph.D. Student (Dissertation Advisor/Co-advisor)
      - 1) Dr. Alvaro Gonzalez (2009-2012) [Bioinformatician at Epinomics]
      - 2) Dr. Yifan Peng (2010-2016) [Assistant Professor, Weill Cornell Medicine]
      - 3) Dr. Luis “David” Lopez (2010-2012) [Principal scientist, Plex-VR]
      - 4) Dr. Ruoyao Ding (2011-2017) [Research Assistant Professor, Jinan University, China]
      - 5) Dr. TianChuan “Michael” Du (2011-2015) [Data Scientist, Microsoft]
      - 6) Dr. Gang Li (2011-2017) [Software Engineer, Google]
      - 7) Dr. Lei Huang (2012-2017) [UD Graduate Fellow, 2016; Research Staff, IBM Almaden Research Center]
      - 8) Dr. Ashique Mahmood (2016-2018) [Research Scientist, Facebook]
      - 9) Dr. Samir Gupta (2016-2019) [Postdoc Fellow, Georgetown University; Assistant Professor, Georgetown University]
    - 10) Mr. Shovan Bhowmik (2022-present)
      - M.S. Student
        - 1) Ms. Nisha Subramanian (2009-2010)
        - 2) Ms. Amy Siu (2009-2010) [PhD, International Max Planck Research School for Computer Science, Germany]
        - 3) Mr. Kanik Sem (2009-2010)
        - 4) Mr. Miao Zhang (2009-2010)
        - 5) Mr. Tim Armstrong (2010-2011)
        - 6) Mr. Zhiwen Li (2012-2014)
4. Graduate Students Mentored in the Bioinformatics and Computational Biology Program
    - PhD Student (Dissertation Advisor/Co-Advisor)



- 1) Dr. Erin Crowgey (2013-2016) [UD Graduate Fellow, 2014, UD Dissertation Fellow, 2015, UD Dissertation Interdisciplinary Research Prize, 2016; Director Medical Bioinformatics, Center for Cancer and Blood Disorders, Nemours Children's Health]
  - 2) Mr. Imam Cartealy (2016-2017) [Fulbright Scholar]
  - 3) Dr. Riza Buatista (2016-2021) [UD Graduate Scholar Award, 2016; NSF IGERT Scholar; ACM SIGHPC-Intel Fellowship] [Senior Data Scientist, Target]
  - 4) Dr. Jia Ren (2017-2019) [Software Engineer, Google]
  - 5) Dr. Rita Hayford (2017-2022) [UD Graduate Scholar Award, 2017, 2018; UD Dissertation Fellowship Award, 2020][Postdoctoral Fellow, Maize Genomics, US Department of Agriculture]
  - 6) Dr. Sachin Gavali (2017-2022) [UD Doctoral Fellowship Award, 2020; Sigma Xi GiAR Award, 2020] [Senior Bioinformatics Data Engineer, GRAIL]
  - 7) Ms. Manju Anandakrishnan (2022-present)
  - 8) Mr. Omar Alharbi (2022-present)
  - 9) Mr. Saad Alhabiti (2022-present)
    - MS and PSM Student (Thesis/Internship Advisor)
  - 1) Dr. Xia "Katie" Bi (2010-2012) [MD, Jefferson Medical College]
  - 2) Dr. Sari Khaleel (2010-2012) [MD, Geisel School of Medicine at Dartmouth, 2016; Urologic Oncology Fellow, Memorial Sloan Kettering Cancer Center]
  - 3) Dr. Jia Ren (2012-2013) [Software Engineer, Google]
  - 4) Dr. Mengxi Lv (2012-2014) [UD Doctoral Fellow, 2017] [Senior Data Scientist, IBM]
  - 5) Dr. Irem Celen (2012-2014) [Republic of Turkey Scholarship Scholar] [UD Graduate Fellow, 2016] [Bioinformatics Scientist, Sema4]
  - 6) Ms. Pan Tang (2013-2014)
  - 7) Ms. Julie Cowart (2012-2016) [Bioinformatics Software Engineer, UD]
  - 8) Ms. Melanie Salinas (2015) [PhD student at National University of Singapore]
  - 9) Dr. M. Joseph Tomlinson IV (2015-2016) [Senior Computational Biologist, Novasenta]
  - 10) Ms. Xu Zhu (2016-2017)
  - 11) Mr. Juan Paolo Sicat (2016-2017) [PhD student at University of Greenwich]
  - 12) Ms. Xihan Qin (2018-2021) [PhD student at University of Delaware]
5. Thesis/Dissertation Committee
- 1) Ms. Abel Licon (2010) [MS, Computer and Information Sciences]
  - 2) Dr. Catalina Oana Tudor (2010-2011) [PhD, Computer and Information Sciences]
  - 3) Dr. Kevin McCormick (2011-2013) [PhD, Computer and Information Sciences]
  - 4) Mr. Brian S. Ladman (2011-2015) [PhD, Animal and Food Sciences]
  - 5) Mr. Jaysheel Bhavsar (2012-2014) [MS, Computer and Information Sciences]
  - 6) Mr. Sanjeev Patra (2012-2013) [MS, Bioinformatics and Computational Biology]
  - 7) Dr. Reza Hammond (2012-2019) [MS, Bioinformatics and Computational Biology, 2012-2014; PhD, Bioinformatics and Systems Biology, 2015-2019] (Senior Scientist, AbbVie)
  - 8) Mr. Abhijit Kapare (2012-2013) [MS, Bioinformatics and Computational Biology]
  - 9) Mr. Christopher Resnyk (2012-2013) [MS, Animal and Food Sciences]
  - 10) Dr. Dongqing Zhu (2013-2014) [PhD, Computer and Information Sciences]
  - 11) Mr. Alparslan Sari (2014) [MS, Bioinformatics and Computational Biology]
  - 12) Mr. Prasad Gajare (2014) [MS, Bioinformatics and Computational Biology]
  - 13) Dr. Boyu Zhang (2014-2015) [PhD, Computer and Information Sciences]
  - 14) Dr. Colin Kern (2014-2015) [PhD, Computer and Information Sciences]
  - 15) Mr. Matthew Ralston (2014-2015) [MS, Bioinformatics and Computational Biology]
  - 16) Ms. Barbra Ferrell (2014-2015) [MS, Bioinformatics and Computational Biology]
  - 17) Ms. Rebecca Sahraoui (2014-2016) [MS, Biological Sciences]
  - 18) Dr. Ramanuja Simha (2014-2016) [PhD, Computer and Information Sciences]

- 19) Dr. Sangjuncta Barkataki (2015-2018) [PhD, Medical Sciences](Senior Scientist, AstraZeneca)
  - 20) Dr. Atul Kakrana (2015-2018) [PhD, Bioinformatics and Systems Biology]
  - 21) Dr. Moumita Bhattacharya (2016-2019) [PhD, Computer and Information Sciences](Senior Research Scientist, Netflix)
  - 22) Dr. Mengxi Lv (2016-2019) [PhD, Bioinformatics and Systems Biology]
  - 23) Dr. Irem Celen (2016-2019) [PhD, Bioinformatics and Systems Biology]
  - 24) Dr. Imam Cartealy (2019-2021) [PhD, Bioinformatics Data Science]
  - 25) Dr. Gongbo Zhang (2019-2021) [PhD, Computer and Information Sciences]
  - 26) Dr. Peng Su (2019-2021) [PhD, Computer and Information Sciences]
  - 27) Dr. Jiefu Li (2020-2021) [PhD, Computer and Information Sciences]
  - 28) Dr. Debarati Roychowdhury (2020-2022) [PhD, Computer and Information Sciences]
  - 29) Mr. Mengmeng Ma (2022-present) [PhD, Computer and Information Sciences]
  - 30) Mr. Aman Sawhney (2022-present) [PhD, Computer and Information Sciences]
  - 31) Mr. Mehmet Efruz Karabulut (2022-present) [PhD, Computer and Information Sciences]
  - 32) Mr. Ilya Tyagin (2022-present) [PhD, Bioinformatics Data Science]
  - 33) Mr. Guna Gurazada (2022-present) [PhD, Bioinformatics Data Science]
  - 34) Mr. Brett Graver (2022-present) [PhD, Biological Sciences]
6. Independent Studies/Rotations/Summer Scholars/Undergraduate Interns
    - 1) Mr. Yuanlong “Tyler” Tian (Fall 2012) [PSM, Bioinformatics]
    - 2) Mr. Yubo Xu (Spring 2014) [MS, Bioinformatics and Computational Biology]
    - 3) Mr. David Blickwedel (Spring 2014) [BS, Chemical and Biomolecular Engineering]
    - 4) Ms. Jennifer Niemczyk (Spring 2013) [NSF IGERT Scholar]
    - 5) Ms. Stephanie Luff (Fall 2013) [NSF IGERT Scholar]
    - 6) Ms. Rachel Lawrence (Summer 2018) [NSF EPScoR Undergraduate Summer Scholar]
    - 7) Mr. Connor Herron (Summer 2019) [NSF EPScoR Undergraduate Summer Scholar]
    - 8) Mr. Jonathan Olshin (Summer2021-Fall 2022) [NSF EPScoR Undergraduate Summer Scholar]
    - 9) Ms. Greshma Vachepalli (2022-2023) [MS, Data Science]
    - 10) Mr. Aaron Gluck (2022-present) [BS, Computer Science]
    - 11) Ms. Sai Prashanthi Gumpili (2023-present) [MS, Data Science]
  7. Visiting Scholar [China Scholarship Council Program]
    - Dr. Dongmei Zhang, Associate Professor, Department of Computer Science &Technology, Shandong Jianzhu University, China (2014-2015)
  8. Visiting Interns
    - Undergraduate Student
      - Mr. John Stewart (2009) [Delaware State University]: Independent Study in Bioinformatics
      - Ms. Melissa Early (2011) [Wesley College]: Summer Intern
      - Mr. Gabriel Fernandez (2012) [Wesley College]: Summer Intern
      - Mr. Alexander Gorowara (2012) [Worcester Polytechnic Institute]: Summer Intern
      - Ms. Amber Wang (Summer 2020) [University of Maryland, College Park]: Summer Intern
      - Ms. Dana Niemeyer (Summer 2020) [Delaware State University]: NSF EPScoR Undergraduate Summer Scholar]

### **Georgetown University (62 Mentees)**

- Research Faculty (16)
- Postdoctoral Research Scientists and Research Associates Trainees (6)
- Research Assistant Trainees (8)
- PhD Dissertation Advisees (3)
- Graduate Internship Advisees (19)
- Visiting Scholars/Interns (6)

– High School Mentees (4)

1. Research Faculty Mentored in the Department of Biochemistry and Molecular Biology, Georgetown University Medical Center (GUMC)
  - 1) Dr. Darren Natale: Research Assistant Professor (2002-present)
  - 2) Dr. Leslie Arminski: Research Assistant Professor (2002-2021)
  - 3) Dr. Hongzhan Huang: PIR Senior Bioinformatics Scientist (1999-2002); Research Assistant Professor (2002-2008)
  - 4) Dr. Anastasia Nikolskaya: Research Assistant Professor (2002-2008) [NCBI, NIH]
  - 5) Dr. Raja Mazumder: Research Assistant Professor (2002-2012)
  - 6) Dr. Sandeep Kumar: Research Assistant Professor (2002-2003)
  - 7) Mr. Baris Suzek: Research Associate (2004-2008); Research Instructor (2008-2012); Research Assistant Professor (2012-2013)
  - 8) Dr. Peter McGarvey: Research Associate Professor (2005-2021); Research Professor (2021-present)
  - 9) Dr. Cecilia Arighi: Research Assistant Professor (2005-2008)
  - 10) Dr. Xin “Jean” Yuan: Research Instructor (2005-2006) [Investigator, GlaxoSmithKline (2007-2012); Branch Chief, Program Director, Bioinformatics and Computational Biology, NIGMS, NIH (2019-)]
  - 11) Dr. Robel Kahsay: Research Instructor (2005-2007) [Assistant Research Professor, George Washington University (2016-)]
  - 12) Dr. Zhang-Zhi Hu: PIR Senior Bioinformatics Scientist (2000-2006); Research Assistant Professor (2006-2007); Research Associate Professor (2007-2008) [Scientific Review Officer, CSR, NIH (2010-2022); Program Director, NCI, NIH (2023-)]
  - 13) Dr. C.R. Vinayaka: PIR Senior Bioinformatics Scientist (2001-2006); Research Assistant Professor (2006-present)
  - 14) Dr. Sona Vasudevan: PIR Senior Bioinformatics Scientist (2004-2006); Research Assistant Professor (2006-2012)
  - 15) Dr. Natalia Roberts: Research Assistant Professor (2011-2013)
  - 16) Dr. Karen Ross: Assistant Professor, Medical Educator (2015-2022); Associate Professor, Medical Educator (2022-present)
2. Postdoctoral Research Scientists and Research Associates Mentored at the National Biomedical Research Foundation (NBRF) and Department of Biochemistry and Molecular Biology, GUMC
  - 1) Dr. Chittari V. Shivakumar: Bioinformatics Scientist, NBRF (1999-2000)
  - 2) Dr. Chunlin Xiao: Bioinformatics Scientist, NBRF (1999-2001)
  - 3) Dr. Zhenglin Hou: Bioinformatics Scientist, NBRF (2000-2001)
  - 4) Dr. Peter Kourtesis: Postdoctoral Research Associate, GUMC (2003) [Clinical Development Coordinator at ALAPIS, Athens, Greece, since 2010]
  - 5) Dr. Xianying Wei: Postdoctoral Research Associate, GUMC (2004-2005)
  - 6) Dr. Thanemozhi G. Natarajan: Postdoctoral Research Associate, GUMC (2010-2012) [Genomics Scientist at Human Longevity, Inc.]
3. Research Assistant Trainees Mentored at NBRF and Department of Biochemistry and Molecular Biology, GUMC
  - 1) Mr. Joseph Janda (B.S.): Technical Coordinator (1999-2000)
  - 2) Mr. Jiang Zhang (M.S.): Graduate Research Assistant (1999-2002)
  - 3) Ms. Kali Lewis (B.S.): Technical Coordinator (2000-2002)
  - 4) Mr. Devin Hendricks: Research Assistant (2003)
  - 5) Ms. Christina Fang (B.S.): Graduate Research Assistant (2004-2006)
  - 6) Mr. Narendra Kambam (Ph.D. student in Bioinformatics, George Mason U): Graduate Research Assistant (2003-2004)
  - 7) Mr. Vincent Hermoso (M.S. student in Biochemistry & Molecular Biology, GUMC): Graduate

Research Assistant (2003-2005)

8) Mr. Amar Kalelkar (B.S.): Graduate Research Assistant and Technical Coordinator (2003-2006)

4. Graduate Students Mentored in the Department of Biochemistry and Molecular Biology, GUMC

- Ph.D. Students in the Biomedical Program, GUMC
  - 1) Dr. Natalia Petrova, Biochemistry & Molecular Biology PhD program (2002-2008) [Dissertation topics: Structure bioinformatics for protein catalytic site prediction] [Research Assistant Professor at University of Delaware, since Spring 2009]
  - 2) Dr. Daniel Crooks, Biomedical Sciences GU/NIH Partnership Program (2007-2012) [NIH]
  - 3) Dr. Norman Goodacre, Biochemistry and Molecular & Cellular Biology PhD program (2009-2014) [ORISE Postdoctoral Fellow at FDA]
- Graduate Interns (BCHB910 Biochemistry Internship) and Volunteer Interns in M.S. or Ph.D. program on Biochemistry & Molecular Biology, GUMC
  - 1) Ms. Zhenya Li (Ph.D. student) (2000)
  - 2) Ms. Fang Wang (M.S. student) (2001)
  - 3) Mr. Bo Li (M.S. student) (2002)
  - 4) Ms. Maggie Yu (M.S. student) (2002)
  - 5) Ms. Abby Ngau (M.S. student) (2002-2003)
  - 6) Mr. Zachary Khalique (M.S. student) (2004)
  - 7) Mr. Vincent Hermoso (Spring 2005)
  - 8) Ms. Kawther Abdilleh (Spring 2005)
  - 9) Mr. Xiangbin Wang (Fall 2005)
  - 10) Mr. Alireza Amoozmand (Spring 2006)
  - 11) Mr. Ti-Cheng Chang (Spring 2006) [PhD, Penn State University, 2012]
  - 12) Mr. Paul Ramos (Spring 2006)
  - 13) Mr. Michael Brennan (Fall 2006)
  - 14) Ms. Elvena Fong (Spring 2007)
  - 15) Ms. Aparna Pallav (Spring 2007) [Bioinformatician, Virginia Commonwealth University]
  - 16) Ms. Pratibha Dubey (2008-2011)
  - 17) Mr. Lin An (2012-2013)
  - 18) Mr. Kam Ho To (Spring 2008)
  - 19) Lanlan "Iris" Yin (Spring 2008)

5. Visiting Graduate Interns

- 1) Mr. Jung-Wei Fan, M.S. in Bioinformatics, National Yang Ming University, Taiwan (Summer 2002) [Ph.D. Biomedical Informatics, Columbia University; presently Kaiser Permanente's informatics team]
- 2) Mr. Hsin-Ta Wu, M.S. in Bioinformatics, Yang Ming U, Taiwan (Summer 2005)
- 3) Mr. Weihsiang Hsieh, M.S. in Bioinformatics, Yang Ming U, Taiwan (Summer 2005)
- 4) Ms. Yen-Ting Hsieh, M.S. in Bioinformatics, Yang Ming U, Taiwan (Summer 2007)
- 5) Chia-Ju "Cheryl" Lee, Northwestern University, Chicago, IL (Summer 2008)

6. Visiting Scholar [China Scholarship Council-Georgetown Postdoctoral Fellowship Program]

- 1) Dr. Kai Tang, Assistant Professor, State Key lab of Ocean biology, Xiamen University, Xiamen, China (2008-2009)

7. High School Students Mentored

- 1) Mr. Sherwin Yu, Thomas Jefferson High School for Science and Technology, Virginia (Summer 2007) [attending Yale University since Fall 2008]
- 2) Mr. Winston Dong, Montgomery Blair High School, Maryland (Summer 2007)
- 3) Mr. Theodore Toth, Winston Churchill High School, Maryland (Summer 2007) [attending Georgetown University since Fall 2008]
- 4) Ms. Sheron Yin, Thomas Jefferson High School for Science and Technology, Virginia (Summer 2008)

[attending Yale University since Fall 2009]

### **University of Texas/Health Center at Tyler (57 Mentees)**

1. 53 Graduate (M.S. in Computer Science) research projects, University of Texas at Tyler (UTT) and University of Texas Health Center at Tyler (UTHCT), 1989-1998
  - Mentored M.S. students on research projects in Research Methods (COSC 5380) or Independent Study (COSC 5199)
2. 4 Postdoctoral Trainees, University of Texas Health Center at Tyler (UTHCT), 1995-1999
  - Dr. Sheng Zhao (1995-1997)
  - Dr. Chittari V. Shivakumar (1996-1998)
  - Dr. Jing Zhao (1998)
  - Dr. Hongzhang Huang (1998-1999)

### **RESEARCH GRANTS (>80) [Continuously funded since 1987, totaling >\$60M to lab]**

#### **1) Current Grants (9)**

1. 10/01/2023 – 09/30/2026  
2333740, NSF/ITE  
Proto-OKN Theme 1: A Dynamically-Updated Open Knowledge Network for Health: Integrating Biomedical Insights with Social Determinants of Health  
\$1,500,000 (total costs); UD component: \$600,000  
Role: Co-PI, 6.25% effort  
[PI: Aidong Zhang, University of Virginia]
2. 07/01/2023 – 06/30/2028  
U54GM104941-11, NIH/NIGMS  
Delaware Clinical and Translational Research ACCEL Program  
\$20.0 million (total costs)  
Role: Biostatistics, Epidemiology & Research Design (BERD) Core, 2% effort  
[PI: Gregory Hicks, UD]
3. 04/03/2023 – 04/03/2024  
Waters Technologies Corporation  
Text Mining and Information Retrieval and Extraction  
\$372,591 (total costs); Wu lab component: \$195,936  
Role: Collaborator, 0% effort  
[PIs: Vijay Shanker and Austin Brockmeier, UD]
4. 09/01/2022 – 08/31/2025  
2219731, NSF/CNS  
CISE-MSI: DP: III: Training and Partnership in Data Science for Advancing Research in Biomolecular Detection  
\$584,970 (total costs); UD component: \$115,710  
Role: Co-PI, 5% effort  
[PI: Hacene Boukari, Delaware State University]
5. 07/01/2022 – 06/30/2027  
1T32GM142603-01A1, NIH/NIGMS  
Graduate Training Program in Computational Biology, Bioinformatics and Biomedical Data Science (CBB)  
\$1,425,395 (total costs)  
Role: MPI, 5% effort  
[MPI: Shawn Polson (contact), Cathy Wu, Abhyudai Singh, Karen Hooper, UD]
6. 12/01/2021 – 06/30/2024

UNIDEL Foundation

UD Artificial Intelligence (AI) Center of Excellence

\$494,946 (total costs)

Role: MPI/Executive Committee, 0% effort

[MPI: Kathleen McCoy, Sunita Chandrasekaran, Cathy Wu, Rudi Eigenmann, Jamie Philips, UD]

7. 09/17/2021 – 05/31/2026

2U24HG007822-08, NIH/NHGRI

UniProt: A Protein Sequence and Function Resource for Biomedical Science

\$27,003,848 (total costs); PIR Component: \$4,726,441

Role: MPI and PI of PIR Component, 15.8% effort

[MPI: Alex Bateman (contact), EMBL-EBI, UK; Alan Bridge, SIB, Switzerland; Cathy Wu, GU-PIR & UD-PIR]

8. 08/25/2021 – 07/31/2026

1R35GM141873-01, NIH/NIGMS

Protein Knowledge Networks and Semantic Computing for Disease Discovery

\$2,166,895 (total costs)

Role: PI, 28.3% effort

9. 09/01/2021 – 08/31/2026

2125703, NSF/DGE

NRT- HDR: Computing and Data Science Training for Materials Innovation, Discovery, Analytics

\$2,999,011 (total costs)

Role: Co-PI, 0.8% effort

[PI: Arthi Jayaraman, UD]

## 2) Past Grants (76)

10. 10/01/2019 – 09/30/2023

1919839, NSF/OAC (Office of Advanced Cyberinfrastructure)

MRI: Acquisition of a Big Data and High Performance Computing System to Catalyze Delaware Research and Education

\$1,399,992 (total costs)

Role: Co-PI, 0% effort

[PI: Rudolf Eigenmann, UD]

11. 09/01/2020 – 08/31/2023

20-2020EPSCoR-0024, NASA

NASA EPSCoR Research Project: Building a Competitive and Sustainable Delaware Remote Sensing Big Data Center for Cutting-Edge Coastal and Environmental Change Research and Workforce Development

\$749,807 (total costs)

Role: Co-Science PI, 2.5% effort

[PI: William Matthaeus, UD]

12. 09/01/2021 – 08/31/2023

358432114088, NIH STRIDES & AWS (Amazon Web Services)

NIGMS AWS Cloud Credit for Research (CCR): Cloud Computing for UniProt Protein Sequence Clustering as a Community Resource

\$54,650 (total costs)

Role: PI, 0% effort

13. 09/05/2018 – 06/30/2023

U54GM104941-07, NIH/NIGMS

Delaware Clinical and Translational Research ACCEL Program

\$21.0 million (total costs)

Role: Biostatistics, Epidemiology & Research Design (BERD) Core, 5% effort

- [PI: Gregory Hicks, UD]
14. 08/02/2022 – 05/31/2023  
3U24HG007822-09S1, NIH/NHGRI  
UniProt – Building Community Metrics for FAIR and Trustworthy Resources  
\$198,000 total; PIR Component: \$117,000 [Administrative Supplement]  
Role: MPI (PI of PIR Component), 0% effort (effort in parent grant 2U24HG007822-08)  
[MPI: Alex Bateman (contact), European Molecular Biology Laboratory - European Bioinformatics Institute (EMBL-EBI), UK; Cathy Wu, GU-PIR]
  15. 08/02/2022 – 05/31/2023  
3U24HG007822-09S2, NIH/NHGRI  
UniProt - Protein sequence and function embeddings for AI/Machine Learning readiness  
\$250,980 total; PIR Component: \$108,800 [Administrative Supplement]  
Role: MPI (PI of PIR Component), 0% effort (effort in parent grant 2U24HG007822-08)  
[MPI: Alex Bateman (contact), European Molecular Biology Laboratory - European Bioinformatics Institute (EMBL-EBI), UK; Alan Bridge, Swiss Bioinformatics Institute, Switzerland; Cathy Wu, UD-PIR]
  16. 08/01/2017 – 07/31/2022  
1736123, NSF/OIA (Office of Integrative Activities)  
RII Track-2 FEC: Advanced Biomanufacturing: Catalyzing Improved Host Development and High Quality Medicines through Genome to Phenome Predictions  
\$6,000,000 (total costs)  
Role: Senior Investigator, 5% effort  
[PI: Sarah Harcum, Clemson University]
  17. 06/01/2018 – 09/30/2021  
2U24HG007822-05, NIH/NHGRI  
UniProt: A Centralized Protein Sequence and Function Resource  
\$18 million total; PIR Component: \$3 million  
Role: Consortium PI (PI of PIR Component), 20% effort  
[PI: Alex Bateman, European Bioinformatics Institute (EBI), Hinxton, UK]
  18. 05/01/2019 – 08/31/2021  
2P20GM103446-19, NIH/NIGMS  
Delaware INBRE  
\$10 million (total costs)  
Role: Program Coordinator, 30% effort  
[PI: Steven Stanhope, University of Delaware]
  19. 07/01/2020 – 05/31/2021  
3U24HG007822-07S1, NIH/NHGRI  
UniProt - Enhancing functional genomics data access for the Alzheimer's Disease (AD) and dementia-related protein research communities  
\$318,651 total; PIR Component: \$191,622 [Administrative Supplement]  
Role: Consortium PI (PI of PIR Component), 0% effort (effort in parent grant 2U24HG007822-07)  
[PI: Alex Bateman, European Bioinformatics Institute (EBI), Hinxton, UK]
  20. 09/01/2019 – 08/31/2020  
University of Delaware, Graduate College Innovation Grant in Program Development & Innovation: An Online Biomedical Informatics & Data Science Graduate Certificate Program  
\$40,913 (total costs)  
Role: MPI, 0% effort
  21. 09/01/2016 – 08/31/2020  
3R01GM080646-11S1, NIH/NIGMS [Administrative Supplement]  
PRO: Protein Ontology in OBO Foundry for Scalable Integration of Biomedical Knowledge

- \$40,000 (total costs)  
Role: PI, 0% effort (effort in parent grant 2R01GM080646-10)
22. 09/01/2015 – 08/31/2020  
2R01GM080646-10, NIH/NIGMS  
PRO: Protein Ontology in OBO Foundry for Scalable Integration of Biomedical Knowledge  
\$2,810,198 (total costs)  
Role: PI, 10% effort
23. 08/05/2016 – 07/31/2020  
1U01GM120953-01, NIH/NIGMS  
Semantic Literature Annotation and Integrative Panomics Analysis for PTM-Disease Knowledge Network  
Discovery  
\$1,110,161 (total costs)  
Role: Contact PI, 10% effort
24. 04/01/2018 – 06/30/2020  
UNIDEL Foundation  
Data Science Institute  
\$650,000 (total costs)  
Role: Director, 24% effort
25. 09/20/2019 – 05/31/2020  
3U24HG007822-05S2, NIH/NHGRI  
UniProt Supporting Functional Genomics and Research Community Engagement for Alzheimer's  
Disease  
\$453,902 total; PIR Component: \$304,812 [Administrative Supplement]  
Role: Consortium PI (PI of PIR Component), 0% effort (effort in parent grant 2U24HG007822-06)  
[PI: Alex Bateman, European Bioinformatics Institute (EBI), Hinxton, UK]
26. 12/10/2018 – 06/30/2019  
University of Delaware, Unidel Grand Challenge Grants  
Development of a UD wide training grant to support diversity in biomedical research graduate programs  
\$40,000 (total costs)  
Role: Co-PI, 0% effort [PI: Babatunde A. Ogunnaike, UD]
27. 09/01/2018 – 08/31/2019  
Delaware Bioscience Center for Advanced Technology (CAT)  
The HeNN App for Addressing Opioid Use Disorders: A Collaborative Project to Develop & Evaluate a  
Promising Healthcare Product  
\$100,000 (total costs)  
Role: Co-PI, 0% effort [PI: Tammy Anderson, UD]
28. 07/01/2018 – 06/30/2019  
WXWH18R0032, USAMRMC (US Army Medical Research and Materiel Command)  
ISfinder Prokaryotic Insertion Sequence (IS) Database  
\$301,172 total; PIR Component \$142,000  
Role: Co-PI, 2% effort
29. 09/06/2018 – 05/31/2019  
3U24HG007822-05S1, NIH/NHGRI  
UniProt supporting an integrated multidisciplinary research agenda for Alzheimer's  
Disease  
\$512,695 total; PIR Component: \$114,319 [Administrative Supplement]  
Role: Consortium PI (PI of PIR Component), 0% effort (effort in parent grant 2U24HG007822-05)  
[PI: Alex Bateman, European Bioinformatics Institute (EBI), Hinxton, UK]
30. 05/01/2016 – 04/30/2019



- 3P20GM103446-16S1, NIH/NIGMS [Administrative Supplement]  
 Delaware INBRE  
 \$522,433 (total costs)  
 Role: Program Coordinator and Co-PI, 0% effort (effort in parent grant 2P20GM103446-14)  
 [PI: Steven Stanhope, University of Delaware]
31. 08/01/2014 – 04/30/2019  
 2P20GM103446-14, NIH/NIGMS  
 Delaware INBRE  
 \$18.2 million (total costs)  
 Role: Program Coordinator, 30% effort  
 [PI: Steven Stanhope, University of Delaware]
32. 07/01/2012 – 06/30/2019  
 NSF/DGE (Division of Graduate Education)  
 IGERT: Systems Biology of Cells in Engineered Environments (SBE2)  
 \$3,000,000 (total costs)  
 Role: Co-PI, 2.5% effort
33. 09/22/2015 – 05/31/2018  
 1U01HG008390-01, NIH/Common Fund, BD2K  
 MACE2K - Molecular and Clinical Extraction: A Natural Language Processing Tool for Personalized Medicine  
 \$1,404,531 total; UD Subcontract: \$468,000  
 Role: PI of UD Subcontract, 8.3% effort  
 [PI: Subha Madhavan, Georgetown University, Washington, DC]
34. 09/01/2016 – 08/31/2018  
 University of Delaware, E-Learning Grant Program  
 Excellence and Innovation in E-Learning: An Online Bioinformatics Graduate Certificate Program  
 \$75,000 (total costs)  
 Role: PI, 2% effort
35. 09/18/2014 – 05/31/2018  
 1U41HG007822-01, NIH/NHGRI & NIGMS  
 UniProt: A Centralized Protein Sequence and Function Resource  
 \$21.8 million total; PIR Component: \$3.8 million  
 Role: Consortium PI (PI of PIR Component), 20% effort  
 [PI: Alex Bateman, European Bioinformatics Institute (EBI), Hinxton, UK]
36. 05/01/2016 – 04/30/2018  
 5U54HL127624-03, NIH/Common Fund, BD2K  
 Data Coordination and Integration Center for LINCS-BD2K: eDSR-Collaborative Resource for LINCS  
 Panomics PTM Knowledge Network  
 \$8 million total; UD subcontract: \$260,000  
 Role: PI of UD Subcontract, 4.7% effort  
 [PI: Avi Ma'ayan, Icahn School of Medicine at Mount Sinai, New York, NY]
37. 05/01/2016 – 04/30/2018  
 1642535, NSF/MCB (Division of Molecular and Cellular Bioscience)  
 Youth Bioinformatics Symposium  
 \$3,780 (total costs)  
 Role: Co-PI, 0% effort  
 [PI: Kamaljeet Sanghera, George Mason University, Fairfax, VA;  
 Sponsor: International Society for Computational Biology (ISCB)]
38. 09/01/2013 – 08/31/2016  
 DE-SC0010838, DOE

- BioCreative Workshops for DOE Genome Sciences: Text Mining for Metagenomics  
 \$40,000 (total costs)  
 Role: PI, 2% effort
39. 09/01/2014 – 08/31/2016  
 1R561LM011354-01A1, NIH/NLM  
 Utilizing Imaged-based Features in Biomedical Literature Classification  
 Role: Co-Investigator, 2.5% effort  
 \$560,000 (total costs)  
 [PI: Hagit Shatkay, University of Delaware]
40. 07/01/2011 – 06/30/2016  
 1062520, NSF/DBI (Division of Biological Infrastructure)  
 ABI Development: Integrative Bioinformatics for Knowledge Discovery of PTM Networks  
 \$1,592,561 (total costs)  
 Role: PI, 10% effort
41. 09/21/2011 – 08/31/2015  
 2 R01GM080646-06, NIH/NIGMS  
 PRO: A Protein Ontology in OBO Foundry for Integration of Biomedical Knowledge  
 \$3,285,049 (total costs)  
 Role: PI, 15% effort
42. 09/21/2012 – 08//2015  
 3R01GM080646-07S1, NIH/NIGMS  
 PRO: A Protein Ontology in OBO Foundry for Integration of Biomedical Knowledge  
 Supplements to Promote Re-entry into Biomedical and Behavioral Research Careers  
 \$276,103 (total costs)  
 Role: PI/Mentor, 0% effort (effort included in parent grant)
43. 09/27/2010 – 07/31/2014  
 1U41HG006104-01, NIH/NHGRI and NIGMS  
 UniProt: A Centralized Protein Sequence and Function Resource  
 \$21.8 million total; PIR Component: \$3,632,500 (total costs), \$2,387,000 (total direct costs)  
 Role: Consortium PI (PI of the PIR Component), 15% effort  
 [PI: Rolf Apweiler, European Bioinformatics Institute (EBI), Hinxton, UK]
44. 05/01/2009 – 02/28/2014  
 8P20GM103446, NIH/NIGMS  
 Delaware INBRE  
 \$17.4 million (total costs)  
 Role: Program Coordinator and Bioinformatics Core Director, 30% effort  
 [PI: Steven Stanhope, University of Delaware]
45. 09/01/2011 – 08/31/2014  
 DE-SC0007092, DOE  
 Experimental Systems-Biology Approaches for Clostridia-Based Bioenergy Production  
 \$2,232,919 (total costs)  
 Role: Co-PI, 5% effort  
 [PI: Terry Papoutsakis, University of Delaware]
46. 08/19/2010 – 08/31/2014  
 1G08LM010720, NIH/NLM  
 Linking Text Mining and Data Mining for Biomedical Knowledge Discovery  
 \$450,000 (total costs)  
 Role: PI, 0% effort
47. 10/01/2009 – 08/31/2014

- 0850319, NSF/DBI  
 Linking Text Mining with Ontology and Systems Biology  
 \$150,040 (total costs)  
 Role: PI, 3% effort
48. 11/01/2012 – 02/28/2014  
 3P20GM103446-12S1, NIH/NIGMS  
 Delaware INBRE  
 Supplements to Promote Re-entry into Biomedical and Behavioral Research Careers  
 \$154,530 (total costs)  
 Role: Co-PI/Mentor, 0% effort (effort included in parent grant)  
 [PI: Karl Steiner, University of Delaware]
49. 09/01/2012 – 08/31/2013  
 1242809, NSF/DBI  
 BIBM-2012 Travel Awards: Broadening Interdisciplinary Research and Education in Bioinformatics and Biomedicine  
 \$16,000 (total costs)  
 Role: PI, 0% effort
50. 09/01/2009 – 04/30/2012  
 3R01GM080646-04S2, NIH/NIGMS  
 PRO: A Protein Ontology in Open Biomedical Ontologies (Administrative Supplements)  
 \$473,350 (total costs), \$270,000 (total direct costs)  
 Role: PI, 5% effort
51. 01/01/2010 – 06/30/2012  
 UNIDEL Foundation  
 Delaware Center for Bioinformatics and Computational Biology  
 \$500,000 (total costs)  
 Role: PI, 5% effort
52. 06/01/2011 – 05/31/2012  
 1137427, NSF/IIS (Division of Information and Intelligent Systems)  
 III: Small: Women in Bioinformatics Initiative at ACM BCB 2011  
 \$22,500 (total costs)  
 Role: Co-PI, 0% effort  
 [PI: Wei Wang, University of North Carolina at Chapel Hill]
53. 09/01/2009-08/31/2012  
 081425, NSF/EPS  
 Delaware EPSCoR  
 Role: Bioinformatics Core Director, 2.5% effort  
 [PI: Don Sparks, University of Delaware]
54. 09/01/2010-08/31/2012  
 1039979, NSF/DBI  
 NSF MRI: Acquisition of Long Read DNA Sequencing  
 \$744,538 (total costs)  
 Role: Bioinformatics Core Director, 0% effort  
 [PI: Blake Meyers, University of Delaware]
55. 09/01/2006 – 08/31/2010  
 2 U01 HG02712-04, NIH/NHGRI and NIGMS  
 The UniProt Protein Sequence and Function Knowledgebase  
 \$24 million total; PIR Component: \$6,000,251 (total costs), \$3,991,406 (total direct costs)  
 Role: Co-PI (PI of the PIR Component), 20% effort

- [PI: Rolf Apweiler, European Bioinformatics Institute (EBI), Hinxton, UK]
56. 05/01/2007 – 09/20/2011  
1 R01 GM080646-01, NIH/NIGMS  
PRO: A Protein Ontology in Open Biomedical Ontologies  
\$2,179,589 (total costs), \$1,587,425 (total direct costs)  
Role: PI, 15% effort
57. 08/29/2009 – 08/28/2011  
3P20RR016472-09S2, NIH/NCRR  
Delaware INBRE (Administrative Supplement only)  
\$979,810 (total costs)  
Role: Co-PI, 5% effort  
[PI: Karl Steiner, University of Delaware]
58. 12/01/2009 – 06/30/2011  
Strategic Initiative Award, UDRF (University of Delaware Research Foundation)  
Intelligent Joint Search in Health and Biomedical Science Databases  
\$45,000 (total costs)  
Role: Co-PI and Research Mentor, 2.5% effort  
[PI: Ben Carterette, University of Delaware]
59. 05/01/2010 – 04/30/2011  
Delaware Health Sciences Alliance (DHSA)  
Linking Genotype to Phenotype: A pilot project to create a research data warehouse of biospecimen and omic information  
\$75,000 (total costs)  
Role: Co-PI, 5% effort  
[PI: Jack London, Thomas Jefferson University]
60. 09/01/2006 – 08/31/2010  
DOD Center of Excellence  
A New Paradigm for Breast Cancer Exploiting Low Dose Estrogen-induced Apoptosis  
\$10.7 million total; PIR component: \$646,231 (total), \$416,386 (direct)  
Role: Director of Georgetown Bioinformatics Core, 5% effort  
[PI: Craig Jordan, Fox Chase Comprehensive Cancer Center]
61. 09/01/2010 – 06/30/2011  
U54RR026076-A1; NIH/NCRR  
Georgetown-Howard Universities Center for Clinical and Translational Science (GHUCCTS)  
\$11 million total costs  
Role: Key Personnel (Task Leader of Biomedical Informatics)  
[PI: Joe Verbalis, Georgetown University Medical Center]
62. 09/13/10 – 12/31/2010  
GS-10F-0202K/10RT0098, USAMC/RDECOM  
Bacterial Pathogen Diagnosis  
\$100,000 (total costs)  
Role: PI, 5% effort
63. 10/01/2009 – 09/30/2010  
0960601, NSF/IIS (Division of Information and Intelligent Systems)  
BIBM Conference: Fostering Interdisciplinary Research and Education in Bioinformatics and Biomedicine  
\$20,000 (total costs)  
Role: PI, 2.5% effort
64. 7/01/2004 – 12/31/2009  
HHSN266200400061C, NIH/NIAID

- Administrative Resource for Biodefense Proteomic Research Centers  
 \$8.8 million total; PIR component: \$1,094,046 (total), \$705,252 (direct)  
 Role: Co-PI and Scientific Director (PI of the PIR Component), 20% effort  
 [PI: Margaret Moore, Social and Scientific Systems, Inc. (SSS), Silver Spring, MD]
65. 09/20/2007 – 09/19/2009  
 W81XWH0720112, USAMRMC (US Army Medical Research and Materiel Command)  
 Literature Mining of Pathogenesis-Related Proteins in Human Pathogens  
 \$200,000 (total costs), \$130,103 (total direct costs)  
 Role: PI, 5% effort
66. 01/01/2005 – 03/30/2009  
 caBIG (cancer Biomedical Informatics Grid), NIH/NCI  
 Prime Contract: 1435-04-04-CT-73980; Subcontract: 79524CBS10  
 Developer Project (2005-2006): Grid enablement of Protein Information Resource (PIR)  
 Adopter Projects (2005-2007): SEED Genome Annotation; GenomeConnect ID Mapping  
 ICR (Integrated Cancer Research), VCDE (Vocabularies and Common Data Elements) and Architecture  
 Workspace Participant Projects (2005-2009)  
 \$981,820 (total), \$634,163 (direct)  
 Role: PI, 5% effort (2005-2007); Director (2008-2009)
67. 09/30/2002 – 08/31/2006  
 1 U01 HG02712-01, NIH/NHGRI  
 The UniProt Protein Sequence and Function Knowledgebase  
 \$21 million total; PIR Component: \$7,089,327 (total costs), \$ 4,420,227 (total direct costs)  
 Role: Co-PI (PI of the PIR Component), 50% effort  
 [PI: Rolf Apweiler, European Bioinformatics Institute (EBI), Hinxton, UK]
68. 09/01/2004 – 08/31/2007  
 IIS-0430743, NSF/SEIII (Science and Engineering Information Integration and Informatics)  
 BioTagger - Biological Entity Tagging Using Online Resources and Machine Learning  
 \$823,109 total; PIR component: \$230,748 (total), \$148,678 (direct)  
 Role: Co-PI (PI of the PIR Component), 5% effort  
 [PI: Hongfang Liu, Department of Biostatistics, Bioinformatics and Biomathematics, Georgetown University  
 Medical Center]
69. 06/01/2005 – 05/31/2006  
 Army Medical Command  
 Identification of biological pathogens  
 \$171,535 (total), 110,525 (direct)  
 Role: Co-PI (PI of the PIR Component), 5% effort  
 [PI: Spiros Dimolitsas, Senior Vice President, Georgetown University]
70. 8/18/2003 – 8/17/2006  
 W0130230, IBM, Shared University Research (SUR) Grant  
 Universal Protein Knowledgebase (UniProt) on IBM Server  
 \$1,149,704 [a gift towards GU's Third Century Campaign in reaching its \$1 billion goal]  
 Role: PI, 0% effort (an equipment grant with no allocated percent effort)
71. 01/01/2005 – 12/31/2005  
 GS-35F-4356D, US Air Force (USAF), Epidemic Outbreak Surveillance (EOS) Program  
 USAF Information Technology Support for the EOS Program  
 \$1 million total; PIR component: \$175,000 (total), \$113,000 (direct)  
 Role: Co-PI (PI of the PIR Component), 5% effort  
 [PI: Doreen Melling, Anteon Corporation, Fairfax, VA]
72. 07/01/2002 – 06/30/2005

- DBI-0138188, NSF/BIO/BDI (Biological Database and Informatics)  
Integrated Protein Classification for Genomic/Proteomic Research  
\$499,928 (total), \$322,119 (direct)  
Role: PI, 10% effort
73. 07/01/2002 – 06/30/2005  
ITR-0205470, NSF/ITR (Information Technology Research)  
Constructing Protein Ontologies Using Text Mining  
\$704,430 total; PIR component: \$303,478 (total), \$195,540 (direct)  
Role: Co-PI (PI of the PIR Component), 10% effort  
[PI: Inderjeet Mani, Department of Linguistics, Georgetown University]
74. 10/01/2002-09/30/2004  
SUN Microsystems, Academic Excellence Grant (AEG) Program  
Integrated Bioinformatics Resource on SUN Server  
\$75,000  
Role: PI, 0% effort (an equipment grant with no allocated percent effort)
75. 03/01/2001-09/30/2002  
P41 LM05798, NIH/NLM  
Protein Information Resource for the Next Millennium  
\$ 2,093,805 (total), \$1,311,812 (direct)  
Role: PI, 80% effort
76. 03/01/1999-02/28/2001  
P41 LM05798, NIH/NLM  
Protein Information Resource for the Next Millennium  
\$ 2,607,798 (total), \$1,665,955 (direct)  
Role: Co-PI, 80% effort  
[PI: Robert Ledley, National Biomedical Research Foundation, Washington, DC]
77. 10/01/1999-06/30/2002  
DBI-9974855, NSF/BIO/BDI  
PIR Classification Database for Genomic Research  
\$283,147 (total), \$176,064 (direct)  
Role: PI, 10% effort
78. 07/01/2003-12/31/2003  
DCWASA (Water and Sewer Authority)  
Computational Gene Target Identification for Pathogens  
\$60,000 (total), \$38,638 (direct)  
Role: Co-PI, 5% effort  
[PI: Raja Mazumder, PIR, Department of Biochemistry and Molecular Biology, GUMC]
79. 07/01/2000-12/31/2000  
R43 HG02176, NIH/NHGRI, SBIR (Small Business Innovation Research)  
Protein Sequence and Annotation Search System  
\$100,000 (total), \$58,954 (direct)  
Role: Consultant, 5% effort  
[PI: Hongzhan Huang, PIR, National Biomedical Research Foundation, Washington, DC]
80. 07/1999-07/2001  
Monsanto Company  
GeneFIND/ProClass and Neural Network Technology  
\$50,000 total  
Role: PI, 5% effort
81. 12/1998-05/2000

US1998055, Compaq-Digital, Inc., External Technology Program (ETG)  
Digital Alpha Server for Protein Information Resource  
\$220,000

Role: PI, 0% effort (an equipment grant with no allocated percent effort)

82. 07/1993-06/1999

R29 LM05524, NIH/NLM

Classification Neural Networks for Genome Research

\$460,641 (total), \$349,922 (direct)

Role: PI, 50% effort

83. 04/1991-12/1995

Cray Research, Inc.

Artificial Neural Systems on Cray for Gene Identification

\$151,000 total

Role: PI, 10% effort

84. 02/1989-12/1992

Cray Research, Inc.

Gene Identification and Classification

\$64,000 total

Role: Co-PI, 10% effort

[PI: George Whitson, Department of Computer Science, University of Texas at Tyler, TX]

85. 01/1987-12/1988

Texas A&M University

Genetic variations of *Phymatotrichum omnivorum* measured by RFLP of mitochondrial DNA

\$45,000 total

Role: PI, 50% effort

## PUBLICATIONS AND PRODUCTS

### Products / Research Resources

#### 1) Patents

1. United States Patent No. 7943148, issued on 5/17/2011, "Amino acid sites in Flavivirus E proteins useful for development of diagnostics and vaccines," Inventors: Jose-Luis Sagripanti, Raja Mazumder, Cathy Wu
2. United States Patent No. 5845049, issued on 12/1/1998, "A neural network system with n-gram term weighting method for molecular sequence classification and motif identification," Sole Inventor: Cathy Wu

#### 2) Research Resources

3. Protein Information Resource (PIR), 1999-Present  
Led the development of PIR (<https://proteininformationresource.org/>) to become a major bioinformatics resource, as profiled in The Scientist (10/15/2001) "Cathy Wu at the Crossroads: She saved the Protein Information Resource database and now aims to restore it to the world's best"
4. UniProt Consortium, 2002-Present  
Co-founded the UniProt Consortium (<https://www.uniprot.org/>) with Swiss Institute of Bioinformatics (SIB) and European Bioinformatics Resource (EBI). UniProt receives >100 million webhits (8 million pageviews) from 1 million unique sites worldwide monthly, and a daily download of >2 TB of data
5. Protein Ontology Consortium, 2007-2021  
Founded the Protein Ontology Consortium (<https://proconsortium.org>) and led the development of Protein Ontology (PRO) within the Open Biomedical Ontologies (OBO) Foundry. PRO SPARQL endpoint is

the top ranked Linked Open Data among 100 life science datasets according to YummyData. PRO website received >20 million hits from 1 million unique sites in the past year.

6. Natural Language Processing (NLP) and BioCreative Text Mining Challenge Evaluations, 2010-Present  
Co-led the BioCreative (Critical Assessment of Information Extraction in Biology) Challenge Evaluations and Workshops (2010-2017); developed iPTMnet (launched in 2017) to capture protein post-translational modification (PTM) information from text mining and data mining, and iTextMine (launched in 2018) to integrate multiple literature mining tools resulting from NLP research

## Books / Conference Proceedings / Journal Special Issues (15)

### 1) Books

1. **Wu CH**, Arighi CN and Ross KE (Editors) (2017). *Protein Bioinformatics: From Protein Modifications and Networks to Proteomics*. Series *Methods in Molecular Biology*, Volume 1558, Series Editor: Walker, John M. 472p. Humana Press. ISBN: 978-1-4939-6781-0; DOI: 10.1007/978-1-4939-6783-4
2. **Wu CH** and Chen C. (Editors) (2011). *Bioinformatics for Comparative Proteomics*. Series *Methods in Molecular Biology*, Volume 694, Series Editor: Walker, John M. 387p. Humana Press. ISBN: 978-1-60761-976-5
3. Wang J, **Wu CH** and Wang P. (Editors) (2003) *Computational Biology and Genome Informatics*. World Scientific. ISBN 981-238-257-7
4. **Wu CH** and McLarty J. (2000) *Neural Networks and Genome Informatics*. Methods in Computational Biology and Biochemistry, Volume 1, Series Editor: Konopka, AK. 205 p. Elsevier Science. ISBN 0 08 042800 2

### 2) Conference Proceedings / Journal Special Issues

5. Arighi CN, Wang Q, **Wu CH**. (Editors) (2017). Proceedings of the BioCreative VI Challenge Evaluation Workshop, October 18-20, 2017
6. Arighi CN, **Wu CH**, Cohen KB, Hirschman L, Krallinger M, Valencia A, Lu Z, Wilbur J, Wieggers T (2014) BioCreative-IV Virtual Issue. *Database* 2014.
7. **Wu CH**, Aluru S, Catalyurek U, Hannenhalli S, Slonim D, Zhang A. (2014) ACM BCB-2013 (ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics) Virtual Issue, *Database* 2014
8. Arighi CN, Cohen KB, Hirschman L, Lu Z, Tudor OC, Wieggers T, Wilbur J, **Wu CH**. (Editors) (2013). Proceedings of the Fourth BioCreative Challenge Evaluation Workshop, Vol 1. ISBN 978-0-615-89815-5
9. **Wu CH**, Arighi CN, Cohen KB, Hirschman L, Krallinger M, Lu Z, Mattingly C, Valencia A, Wieggers TC, Wilbur WJ. (2012) BioCreative-2012 Virtual Issue, *Database* 2012.
10. Arighi CN, Cohen KB, Hirschman L, Krallinger M, Lu Z, Mattingly C, Valencia A, Wieggers T, Wilbur J, **Wu CH**. (Editors) (2012). Proceedings of 2012 BioCreative Workshop. University of Delaware Press.
11. Gao J, Alhajj R, Dubitzky W, Ungar L, Wu CH, Christianson A, Liebman M, Hu X. (Editors) (2012). *Proceedings of 2012 IEEE International Conference on Bioinformatics and Biomedicine* (BIBM-2012), IEEE Computer Society. ISBN 978-1-4673-2558-5
12. Arighi CN, Cohen KB, Hirschman L, Krallinger M, Lu Z, Valencia A, Wilbur J, **Wu CH**. (Editors) (2011). *The Third BioCreative - Critical Assessment of Information Extraction in Biology Challenge*. *BMC Bioinformatics*, Volume 12, Supplement 8.
13. Arighi CN, Cohen KB, Hirschman L, Krallinger M, Lu Z, Valencia A, Wilbur J, **Wu CH**. (Editors) (2010). Proceedings of the BioCreative III (Critical Assessment of Information Extraction in Biology) Workshop. University of Delaware Press. ISBN 978-1-4507-3685-5.
14. Chen XW, Kim S, **Wu CH**, Xu D. (Editors) (2009). *Proceedings of 2009 IEEE International Conference on Bioinformatics and Biomedicine* (BIBM-2009), IEEE Computer Society. ISBN 978-0-7695-3885-3
15. **Wu CH**, Wang J. and Wang P. (Editors) (2001) *Proceedings of the Atlantic Symposium on Computational*



## Refereed Papers in Journals and Conference Proceedings (>300)

[[Google Scholar](#): >61,000 citations, h-index: 75, i10-index: 221]

### 1) Original Papers in Refereed Journals

1. Gupta S, Qin X, Wang Q, Cowart JE, Huang H, **Wu CH**, K. Vijay-Shanker, Arighi CN. (2023) eMIND: Enabling automatic collection of protein variation impacts in Alzheimer's disease from the literature. (under review)
2. Anandkrishnan M, Ross K, Chen C, Cowart JE, K. Vijay-Shanker, **Wu CH**. (2023) KSFinder-A knowledge graph model for link prediction of novel phosphorylated substrates of kinases. (under review)
3. Wang Q, Olshin J, K. Vijay-Shanker, **Wu CH**. (2023) Text mining of CHO bioprocess bibliome: Topic modeling and document classification. *PLoS One* 18(4): e0274042. doi: 10.1371/journal.pone.0274042. PMID: 37022994; PMCID: PMC10079098.
4. Baker-Smith CM, Yang W, McDuffie MJ, Nescott EP, Wolf BJ, **Wu CH**, Zhang Z, Akins RE. (2023) Area deprivation and its association with primary hypertension diagnosis among youth medicaid recipients in Delaware. *JAMA Network Open* 2023 Mar 1;6(3):e233012. doi: 10.1001/jamanetworkopen.2023.3012. PMID: 36920393. [impact factor: 13.35]
5. Chitwood DG, Wang Q, Klaubert SR, Green K, **Wu CH**, Harcum SW, Saski CA. (2023) Microevolutionary dynamics of eccDNA in Chinese hamster ovary cells grown in fed-batch cultures under control and lactate-stressed conditions. *Scientific Report* 2023 Jan 21;13(1):1200. doi: 10.1038/s41598-023-27962-0. PMID: 36681715; PMCID: PMC9862248.
6. Paysan-Lafosse T, Blum M, Chuguransky S, Grego T, Pinto BL, Salazar GA, Bileschi ML, Bork P, Bridge A, Colwell L, Gough J, Haft DH, Letunić I, Marchler-Bauer A, Mi H, Natale DA, Orengo CA, Pandurangan AP, Rivoire C, Sigrist CJA, Sillitoe I, Thanki N, Thomas PD, Tosatto SCE, **Wu CH**, Bateman A. (2023) InterPro in 2022. *Nucleic Acids Res.* 2023 Jan 6;51(D1):D418-D427. doi: 10.1093/nar/gkac993. PMID: 36350672; PMCID: PMC9825450.
7. Coudert E, Gehant S, de Castro E, Pozzato M, Baratin D, Neto T, Sigrist CJA, Redaschi N, Bridge A; UniProt Consortium. (2023) Annotation of biologically relevant ligands in UniProtKB using ChEBI. *Bioinformatics.* 2023 Jan 1;39(1):btac793. doi: 10.1093/bioinformatics/btac793. PMID: 36484697; PMCID: PMC9825770.
8. UniProt Consortium. (2023) UniProt: the Universal Protein Knowledgebase in 2023. *Nucleic Acids Res.* 2023 Jan 6;51(D1):D523-D531. doi: 10.1093/nar/gkac1052. PMID: 36408920; PMCID: PMC9825514.
9. Gavali S, Ross KE, Chen C, Cowart JE, **Wu CH**. (2022) A knowledge graph representation learning approach to predict novel kinase-substrate interactions. *Mol Omics.* 2022 Oct 31;18(9):853-864. doi: 10.1039/d1mo00521a. [PMCID: PMC9621340]
10. Hayford R, Serba D, Xie S, Ayyappan V, Thimmapuram J, Saha MC, **Wu CH**, Kalavacharla V. (2022) Global Analysis of Switchgrass (*Panicum virgatum* L.) Transcriptomes in Response to Interactive Effects of Drought and Heat Stresses. *BMC Plant Biology* 2022 Mar 8;22(1):107. doi: 10.1186/s12870-022-03477-0.
11. Wang Y, Wang Q, Huang H, Huang W, Chen Y, McGarvey PB, **Wu CH**, Arighi CN; UniProt Consortium. (2021) A crowdsourcing open platform for literature curation in UniProt. *PLoS Biol.* 2021 Dec 6;19(12):e3001464. doi: 10.1371/journal.pbio.3001464. [PMCID: PMC8675915]
12. Chen C, Ross KE, Gavali S, Cowart JE, **Wu CH**. (2021) COVID-19 knowledge graph from semantic integration of biomedical literature and databases. *Bioinformatics* 2021 Oct 6;37(23):4597-4598. doi: 10.1093/bioinformatics/btab694
13. Zhang X, Maity TK, Ross KE, Qi Y, Cultraro CM, Bahta M, Pitts S, Keswani M, Gao S, Nguyen KDP, Cowart J, Kirkali F, **Wu CH**, Guha U (2021) Alterations in the global proteome and phosphoproteome in third-generation EGFR TKI resistance reveal drug targets to circumvent resistance. *Cancer Research* 2021 Mar 16;canres.2435.2020. doi: 10.1158/0008-5472.CAN-20-2435. PMID: 33727228 [IF: 9.727]
14. Ross K, Varani AM, Snesrud E, Huang H, Alvarenga DO, Zhang J, **Wu CH**, McGann P, Chandler M. (2021)

TnCentral: A Prokaryotic Transposable Element Database and Web Portal for Transposon Analysis. mBio. 2021 Sep 14:e0206021. doi: 10.1128/mBio.02060-21. PMID: 34517763.

15. Chitwood DG, Wang Q, Elliott K, Bullock A, Jordana D, Li Z, **Wu CH**, Harcum SW, Saski CA. (2021) Characterization of Metabolic Responses, Genetic Variations, and Microsatellite Instability in Ammonia-stressed CHO cells grown in Fed-batch Cultures. *BMC Biotechnology* 2021 Jan 8;21(1):4. doi: 10.1186/s12896-020-00667-2.
16. Gene Ontology Consortium. (2021) The Gene Ontology resource: enriching a GOLD mine. *Nucleic Acids Res.* 2021 Jan 8;49(D1): D325-D334. doi: 10.1093/nar/gkaa1113. PMID: 33290552; PMCID: PMC7779012.
17. The UniProt Consortium (2021) UniProt: the universal protein knowledgebase in 2021. *Nucleic Acids Res* 2021 Jan 8;49(D1):D480-D489. doi: 10.1093/nar/gkaa1100. PMID: 33237286
18. Chen C, Huang H, Ross KE, Cowart JE, Arighi CN, **Wu CH**, Natale NA. (2020) Protein ontology on the semantic web for knowledge discovery. *Scientific Data* 2020 Oct 12;7(1):337. doi: 10.1038/s41597-020-00679-9.
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20. Ovadia EM, Pradhan L, Sawicki LA, Cowart J, R. E. Huber, Polson SW, Chen C, van Golen KL, Ross KE, **Wu CH**, Kloxin AM. (2020) Understanding ER+ breast cancer dormancy using bioinspired synthetic matrices for long-term 3D culture and insights into late recurrence. *Advanced Biosystems* 2020 Jun 30:e2000119. doi: 10.1002/adbi.202000119.
21. Shamsaei B, Chojnacki S, Pilarczyk M, Najafabadi M, Niu W, Chen C, Ross K, Matlock A, Muhlich J, Chutipongtanate S, Jaffe J, MacCoss M, **Wu CH**, Pillai A, Ma'ayan A, Zheng J, Turner JP, Vidovic D, Schurer S, Kouril M, Medvedovic M, Meller J. (2020) piNET: a versatile web platform for downstream analysis and visualization of proteomics data. *Nucleic Acids Research*, gkaa436, doi: 10.1093/nar/gkaa436
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  31. Lu C, Sidoli S, Kulej K, Ross K, **Wu CH**, Garcia BA. (2019) Coordination between TGF- $\beta$  cellular signaling and epigenetic regulation during epithelial to mesenchymal transition. *Epigenetics & Chromatin* 12:11. doi: 10.1186/s13072-019-0256-y [PMC6368739]
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