CISC NEWSLETTER

The University of Delaware CISC Department

WELCOME BACK!

THIS ISSUE'S FEATURED ARTICLES:

CONCENTRATION EVENTS

131 Sharp Lab, 5:00 - 6:30

Tuesday, March 8:
Traditional, HPC,Systems and Networks, AI and Robotics, INSY

Tuesday, March 15:
Theory and Computation, Data Science, BioInformatics, and Cybersecurity.

Come get your questions answered by students and faculty involved in each of the concentrations! Enjoy an event of learning about concentrations, socializing with fellow students, and pizza!

ADVISING & COURSE QUESTIONS

We understand that many of you have questions about advising and the CIS undergraduate programs.

For frequently asked questions and other information about our program, check out https://ucpc.cis.udel.edu

For questions such as can I take this course without the pre-reqs, can I get an exception to this rule, can you help me register for this class, etc. use the following email list: cis-ugradprgm@udel.edu and someone will respond to your question/concern.

In an effort to better serve our undergraduate students, and to understand areas where we can improve, the CISC department is asking for your help in filling out this brief survey on advising in our department. Please take a moment to fill out our survey at

https://forms.cis.udel.edu/user/form/6181b13decf269d05ba94835.

POTENTIAL CHAIR PRESENTATIONS

This year our department is looking for the next chair of the CIS department. The new chair will influence the direction the department takes, including department priorities in research and in teaching. This is an important decision for our department.

The potential chairs will be holding a research seminar for us to learn more about their research background.. Consider attending these seminars to learn more about our potential next chair!

DR. SAURABH BAGCHI

DEPENDABILITY MEETS DATA ANALYTICS

Dr. Bagchi will be speaking about the challenges and his potential solution of of maximizing database throughput via by reconfiguring cloud NoSQL databases and cloud serverless applications under changing workload patterns. His work addresses the question of whether large amounts of data can be used to improve dependability of computing systems. Dependability is the property that a computing system continues to provide its functionality despite the introduction of faults, either accidental faults (designed defects, environmental effects, etc.) or maliciously introduced faults (security attacts, external or internal). Dr. Bagchi's work addresses the dependability challenge through large-scale data analytics applied end-to-end from the small (networked embedded systems, mobile and wearable devices) to the large(edge and cloud systems, distributed machine learning clusters). He will give a high-level view of how data analytics has been brought to bear on dependability challenges and key insights arising from his work, and then he will do a deeper dive into specific instantiations.

DR.BHAVANI THURAISINGHAM

SECURE DATA MANAGEMENT: MY CONTRIBUTIONS TO FOUNDATIONS, SYSTEMS AND APPLICATIONS

Dr. Thuraisingham will talk about the resulting security and privacy considerations brought about by the collection, storage, manipulation, and retention of massive amounts of data. For example, even if personally identifiable information is removed from the data, when data is combinedw with other data, an individual can be identified. This problem is exacerbated by the management of big data and machine learning, as it is now possible to extract highly sensitive and private data from the large data stores. While collecting and analyzing massive amounts of data causes security and privacy concerns, big data analytics/machine learning applicatiosn in cyber security is exploding. For example, an organization can outsource to the cloud activities such as malware analysis and insider threat detection. The question is, how can the developments in big data analytics and machine learning techniques be used to solve security problems? Furthermore, how can we handle attacks to the big data analytics/machine learning techniques?
Dr Thuraisingham' will be talking about the challenges of data security and privacy as well as big data analytics/madhine learning for cyber security applications and her research addressing these issues.

Potential Chair Research Seminars:

Dr. Saurabh Bagchi:

Tues, Feb 22 Mitchell Hall 9:30 am
Or join online at
www.udel.edu/009249

Dr. Bhavani Thuraisingham

Mar 3 Mitchell Hall 9:30 am
Or join online at
www.udel.edu/009249

HAGIT SHATKAY-RESHEF

On January 2, 2022, our department lost a valued professor and admired colleague. Dr. Shatkay was a professor in our department, in the Department of Biomedical Engineering, the Department of BioInformatics and Computational Biology, and the Data Science Institute.

Dr. Shatkay's research focused on biomedical computing, computational biomedicine and computational methods in the sciences, including biology, medicine and physics. She was an expert in machine learning and data science methods as applied to scientific and biomedical data.

Dr. Shatkay was passionately supportive of her students. She is remembered by them as demanding and principled yet willing to give freely of her time and advice. She was an excellent role model who always encouraged her students to push themselves to do more.

Dr. Shatkay was a lover of books and objected to throwing any book away. She was known for sharing snacks and treats with her colleagues (and bumming snacks from them when the need arose). She was a staunch supporter of the CPUs, for which we will always be grateful. Her dog Percival was featured in November's newsletter.

Students, faculty and colleagues have filled an online tribute wall with their condolences and memories with Dr. Shatkay, from childhood stories to her passion for education to recollections of her kindness, infectious smile, dedication and willingness to share her expertise.

Sydney Segear, Class of 2024

I have had the opportunity to work in the Human-Computer Interaction Lab at UD led by Dr. Leila Barmaki this past summer and winter session. I have been involved with projects utilizing virtual and augmented reality for medical purposes, specifically physical rehabilitation. Over the summer, with guidance from Dr. Barmaki and other lab members, I developed a virtual reality balance training/rehabilitation application for Oculus Quest using Unity. The app is designed as an ice skating game, where the user is immersed in a VR ice rink with simulated movement across the ice, and is instructed to copy a virtual coach's balance poses. After developing the application, we conducted a user experience pilot study. Over this past winter session, I modified the virtual reality app into an augmented reality app for Microsoft Hololens. This AR app has new features, including an additional avatar that mimics the user's movement in real-time using an Azure Kinect body tracker, as well as methods for data collection on the user's joint position and rotation. This allows the user to see their own movements right next to the virtual coach, as well as collect data on their balance quality. With this updated application, we are beginning to plan another user study to test the effects of these new features. Being a part of this lab has been an extremely valuable experience, and has taught me a lot about the intersection between computer science and medicine.

Open Research Position

If you are an undergrad student interested in doing research this spring on an Assistive Technology System that will automatically make college assignments and exams more user-friendly for neurodiverse individuals, please contact Professor Yarrington (yarringt@udel.edu). We will be looking at the value and effectiveness of incorporate executive planning information into to assignments project and exams automatically. We will also be looking into identifying and simplifying dense text, and possibly flagging ambiguous instructions.

STUDENT OPPORTUNITIES

ADD TO THE NEWSELETTER!

Want to add something to the newsletter? Whether it is a book recommendation to something cool in the department or computer science all the way to a professor or student you recognize, fill out this form!

We're Hiring!

If you are interested in promoting computer science to future potential students and have ideas for creating a sense of community in our department, consider applying to be a CPU!! All applicants will be considered, but right now we are especially looking for someone to work on the newsletter.

If you are interested, email us udcpus@gmail.com