



Chair's Message



Dr. Wei Zhang
Professor and Chair
Computer Science and Engineering

In the academic year 2023 to 2024, the CSE Department has witnessed a steadily growing number of student enrollments and an increasing research expenditure, as we have experienced in the past five years. The CSE undergraduate enrollment, including both the BS CSE and BA CS program, rose from 586 in Fall 2022 to 690 (or 17.7%) in Fall 2023. The CSE Department boasts the largest undergraduate and graduate programs within the Speed School. Our research expenditure for FY 23 exceeded \$2.69 million, marking the highest expenditure in the past five years.

To enhance student learning and foster academic success, the CSE Department has significantly expanded its hiring of undergraduate learning assistants, graduate teaching assistants, and graders. In addition to our tenure-track and tenured faculty members, the department has employed four teaching-track faculty members to bolster our teaching capabilities. Several CSE courses with high enrollments now feature Peer-Assisted Learning (PAL) or help sessions in addition to traditional office hours or lab sessions. We are working with REACH to expand PAL sessions.

Furthermore, the department has introduced three new tracks in AI, Cybersecurity, and Data Science for the BA CS program. Students in the BS CSE program can also pursue a sequence of technical electives to gain expertise in these domains. We are delighted to announce the inaugural capstone design class for BACS students this spring, wherein students collaborated in groups on eight distinct projects sponsored by industry or research institution. One student team was invited to present their project to the CSE Industry Advisory Board, receiving exceptionally positive feedback.

Dr. Olfa Nasraoui received the Presidential excellence award for the COSW Champion for Advocacy



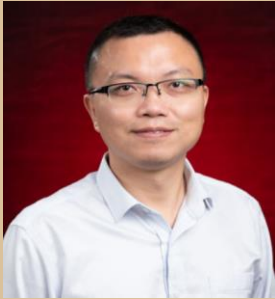
Photo from ATHENA Mentoring
Community Networking Luncheon,
on April 12, 2024, with UofL Women
Faculty, Provost Bradley, and Speed
School of Engineering Dean Collins

President Kim Schatzel, Dr. Olfa
Nasraoui, and Provost Gerry Bradley



Professor Olfa Nasraoui has been leading a large team of faculty, staff and administrators as part of the NSF funded project ATHENA (Advancement through Healthy Empowerment, Networking, and Awareness) to change institutional processes using evidence-based and data driven interventions ranging from a new comprehensive faculty search and recruitment process (STRIDE) to a new faculty mentoring program comprising mentoring circles, networked faculty development workshops, and a new team-based faculty launch mentoring program, all of which have been expanded to all genders. See latest news and reports here: <https://louisville.edu/advance/athena-activity-reports>.

Faculty Research Spotlight: Dr. Rui Yu

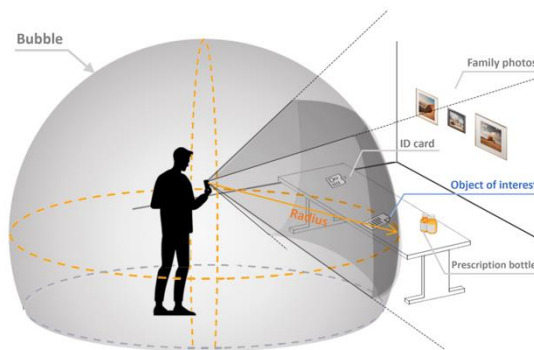


Dr. Rui Yu recently had two works accepted by top-tier conferences, both focusing on leveraging computer vision to enhance remote sighted assistance.

Undergraduate Research Experience 2023

The first work involves utilizing neural radiance fields (NeRF) to aid in training image outpainting models, extending the field of view (FOV) of images. This technology enhances the remote agent's perception of the environmental context. Accepted for publication in the IEEE International Conference on Robotics and Automation (ICRA) 2024 (Ranked #1 Robotics conference), this work will be presented in May 2024.

The second work aims to enhance the privacy of the remote sighted assistance app by estimating object depth in live camera feeds and concealing objects beyond a specified distance. The developed privacy-preserving app BubbleCam has shown promising results in user studies. Accepted for publication in the ACM Conference on Human Factors in Computing Systems (CHI) 2024 (Ranked #1 Human-Computer Interaction conference), this work will also be presented in May 2024.



In the summer of 2023, the CSE Department once again hosted our Undergraduate Research Experience Site in Computer Systems, funded by the National Science Foundation. Ten students were recruited from five different states, including KY, WV, IN, VA, and NJ. The first picture was taken on the first day of this program when the PI, Dr. Zhang, and Co-PI, Dr. Altiparmak, provided students with an orientation and a tour of the campus. The second picture was taken on the last day of the program, during a reception where Drs. Zhang, Kumar, and Nasraoui met with all students after their research poster presentations and farewell dinner.



BACS Student Spotlight: Samuel Iradukunda

I started my academic journey at the J.B. Speed School of Engineering as a Computer Engineering and Science student. My choice was driven by my uncertainty about which area of computer technology truly captivated me. By the end of my sophomore year, I learned of a new major entirely focused on software. My initial hesitation stemmed from it being a Bachelor of Arts degree, and I was concerned about how potential employers might view it, especially since I was keen on a career in Software Engineering. Nevertheless, I took the leap and switched to Computer Science in my junior year. This transition not only fit my interest in software but also granted me the leeway to explore other fields. Consequently, I pursued a minor in management, which broadened my horizons and opened up diverse career opportunities beyond just Software Engineering. This newfound focus and versatility led me to internship rotations at Republic Bank as a Software Engineer and at IBM as a Technical Sales Engineer. In reflection, changing my major was one of the most rewarding decisions I made at the University.

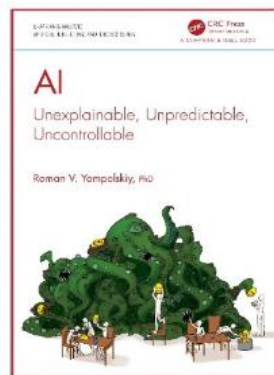


For students contemplating the choice between the two majors, know this: both paths will prepare you for any computer-related careers. But if your passion lies distinctly in software, don't overlook the Bachelor of Arts in Computer Science. It may be the perfect fit for you.

Best regards,
Samuel Iradukunda

20% Discount with code **CSDC04**

Faculty
Spotlight: Dr.
Roman
Yampolskiy
released a new
Book *AI:
Unexplainable,
Unpredictable,
Uncontrollable*



Dr. Roman V. Yampolskiy

AI: Unexplainable, Unpredictable, Uncontrollable

By **Roman V. Yampolskiy, PhD**

Delving into the deeply enigmatic nature of Artificial Intelligence (AI), *AI: Unexplainable, Unpredictable, Uncontrollable* explores the various reasons why the field is so challenging. Written by one of the founders of the field of AI safety, this book addresses some of the most fascinating questions facing humanity, including the nature of intelligence, consciousness, values and knowledge.

Moving from a broad introduction to the core problems, such as the unpredictability of AI outcomes or the difficulty in explaining AI decisions, this book arrives at more complex questions of ownership and control, conducting an in-depth analysis of potential hazards and unintentional consequences. The book then concludes with philosophical and existential considerations, probing into questions of AI personhood, consciousness, and the distinction between human intelligence and artificial general intelligence (AGI).

Bridging the gap between technical intricacies and philosophical musings, *AI: Unexplainable, Unpredictable, Uncontrollable* appeals to both AI experts and enthusiasts looking for a comprehensive understanding of the field, whilst also being written for a general audience with minimal technical jargon.

For more information, visit: www.routledge.com/9781032576268

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BS CSE Student Spotlight: Caeden Whitaker



Caeden Whitaker is graduating summa cum laude from the University of Louisville with a BS in Computer Science and Engineering and a BS in Mathematics. He received the Robert C. Ernst Award from the Speed School of Engineering. His undergraduate research in data storage systems under faculty mentor Dr. Nihat Altiparmak resulted in two research papers published in ACM HotStorage 2023. Caeden will go on to pursue a PhD in Computer Science at the University of Wisconsin-Madison in the Fall of 2024, where he received a guarantee of full financial support for four years. Caeden was also selected by the prestigious NSF Graduate Research Fellowship Program (GRFP) as a fellow providing him an annual stipend of \$37k and cost-of-education allowance of \$16k to his PhD institution.



A paper authored by Dr. Anup Kumar won the "Best Conference Paper Award" at the 6th IEEE Conference on Knowledge Innovation and Invention 2023

CSE Alumni Award Winner 2023 Dr. Sherif Elfayoumy



Dr. Sherif Elfayoumy, the Steel Dynamics Dean of Purdue University Fort Wayne's College of Engineering, Technology, and Computer Science, boasts an impressive academic career with accolades like the FIS Distinguished Professorship Award and UNF Distinguished Professor Runner-Up Award. He is a prominent figure in computer science, having published extensively and secured over \$1.6M in federal funding for his research. Additionally, Dr. Elfayoumy holds key roles in the IEEE/Computer Society and has served as Chief Information Officer for two technology firms while actively contributing to the Jacksonville community and student success at J.B. Speed School.

CSE Honors and Awards

Caeden Whitaker—Robert C. Ernst Award

A plaque and cash award are presented each year to the engineering student who is the honor graduate of the J. B. Speed School of Engineering receiving the Bachelor of Science degree.

Eli Marks—Alfred T. Chen Memorial Scholarship Award

A fund has been established in memory of Alfred T. Chen, Professor of Applied Mathematics and Computer Science and former Director of University Computing Activities. The income from this memorial fund is to provide a commemorative plaque for a Graduate/Professional student pursuing the Master of Engineering degree in any field. The recipient is selected based on scholarship.

Taylor Logan—Departmental Alumni Awards

These cash awards and certificates are presented by the Speed School Alumni Association to outstanding Graduate/Professional Students nominated by each department.

Zachary Owens—John H. Simester Award

The award is given to the Computer Science and Engineering program graduate who has attained the highest cumulative scholastic standing in the Master of Engineering program at the ^[L]_[SEP] J. B. Speed School of Engineering.

Joe Habte—Raymond I. Fields Award

The award is given to the Computer Science and Engineering graduate who has contributed the most to the department and school in leadership and service.

Elijah Spicer—ACM Distinguished Student Award

The award is given to honor a CSE student who has made a significant contribution to the student chapter of the Association for Computing Machinery.

Adam Triebsch—CSE Master of Science Award

The award is given to the Computer Science graduate who has attained the highest cumulative scholastic standing in the departmental Master of Science program.

Bryan Harris—CSE Arthur M. Riehl Award

The award is given to a graduate/professional student with excellent academic performance and contributions to the department activities. The award is given in recognition of Professor Riehl who retired after 40 years of service as a faculty member (1959 – 1999) including 10 years as department chair (1977-1987).



CSE Honors and Awards Continued

Khalil Manzie—CSE Outstanding Undergraduate Award

The award is given to a CSE undergraduate student who demonstrates excellence and potential for future achievements. The recipient is selected by the CSE faculty.

Sarah Massie—BACS Outstanding Undergraduate Award

This award is given to a Bachelor of Arts CS student who demonstrates excellence and potential for future achievements.

Connor Fitzpatrick and Alvin Tran—IEEE Outstanding CSE Student Award

The IEEE Louisville Chapter honors two outstanding students upon the recommendation of CSE faculty.

Miles Taylor—Outstanding Online MS CS Award

This award is given to an online Master of Science CS student who demonstrates excellence and potential for future achievements. The award is to be delivered electronically to the recipient.

Sarah Chung—Gwong Sun Scholarship

The scholarship is awarded to an undergraduate student in CSE with an outstanding academic record and potential for achievement in their professional career. The award is given in honor of Dr. Gwong Sun who joined the Speed School faculty in 1978 and served with dedication until his death in 2003.

Kyle Spurlock—CSE Doctoral Award

The award is given to a Computer Science and Engineering doctoral student selected by the CSE department. Priority is given to those pursuing academic/research careers.



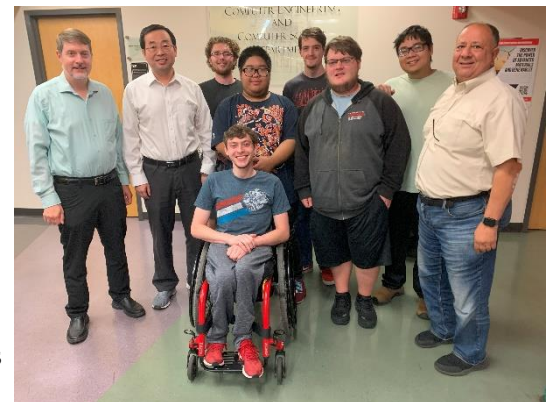
The CyberCorps Scholarship for Service (SFS) project recruited its first cohort of six students in Fall 2023. CSE faculty involved in this NSF-funded project include Dr. Wei Zhang (PI), Dr. Adel Elmaghraby (Co-PI), and Dr. Adrian Lauf (Senior Personnel). The

six students are in the MENG CSE and MS CS programs and are all pursuing the graduate certificate in cybersecurity. These students are expected to work for the federal

government in cybersecurity upon the completion of their graduate studies. All students in this program receive stipends and professional allowances, and have their tuitions and fees covered. More details of this program can be found at

<https://engineering.louisville.edu/academics/departments/computer/cybercorps-scholarship-for-service/>.

Scholarship for Service



Faculty Spotlight: Dr. Sabur Baidya



Dr. Baidya was appointed as an Associate Editor for the IEEE Robotics and Automation Letters (IEEE RA-L) which is a high-quality peer-reviewed journal in the IEEE Robotics & Automation Society (RAS).

Staff Spotlight: Kayden Crews



Kayden joined the Computer Science and Engineering Department in 2023 as a coordinator. She is excited to learn more.



The Autonomous Intelligent Mobile Systems Lab (AIMSLab) led by Dr. Baidya represented the CSE Department at the E-Expo 2024 event at UofL. Dr. Baidya and his students showcased interesting and engaging demos with robots and autonomous systems to the visitors.



Dr. Baidya and his research team (Ph.D. student Mohammad Helal Uddin and undergraduate student Sead Kusmic) have participated in the F1Tenth Autonomous Racing Challenge in the IEEE International Conference on Intelligent Robots and Systems (IROS) 2023 at Detroit, MI (<https://iros2023-race.f1tenth.org/>). It was the first time a team from UofL has participated in that event at their 14th Grand Prix. Dr. Baidya and his team also received Travel Grant support to attend the IEEE IROS 2023 conference and participate in the competition.