Computing Cowboys

Department of Computer Science
Oklahoma State University

2022 Edition

FROM THE DEPARTMENT HEAD

Greetings from the OSU Department of Computer Science! I am hopeful that your new year is off to a good start.

For those who may not know me, please permit me to introduce myself. My name is Blayne Mayfield, and I am in my 35th year with the Department. When our previous Department Head, Dr. K.M. George, decided to step down and go on sabbatical, I agreed to serve as Interim Head of the Department for the 2022-2023 academic year. (Some of you may recall I also served as Head from 1993 to 2000.)

2022 was a busy and productive year for the Department. I am pleased to announce that after years of preparation and effort, we were informed of our ABET accreditation. This is a milestone that will help in our student recruitment efforts and helps us compete well with other accredited C.S. programs in the region. And our undergraduate and graduate enrollment numbers continue to flourish.

Three new Assistant Professors joined the Department during 2022: Drs. Sharmin Jahan, Cong Pu, and Anirudh Paranjothi. They are a welcome addition to our programs and strengthen our efforts in the area of cyber-security. These three, along with the other faculty, are doing a fine job of improving the Department's reputation with regard to research and other scholarly activities.

To help accommodate our strong undergraduate (face-to-face and online) and graduate enrollments, we are seeking to hire two Assistant Professors this semester. We also are searching for a new Department Head. And it is likely that the Department will be searching for another couple of Assistant Professors the following year. So, even with an anticipated one-or-two retirements during that span, our faculty numbers continue to grow to keep pace with the needs of the students.

I am hopeful that if you find yourself in the Stillwater area, you will take the time to drop by and say hello. It's always a pleasure to take time to visit with the folks who have helped make our department a success!

– Dr. Blayne Mayfield

IN THIS EDITION

C.S. ALUMNI RECEIVE RECOGNITION

Joe Carrol (2022 Hall of Fame Inductee), Dan Yost (2022 Distinguished Alumni), Charlene Leubecker (2021 Distinguished Alumni), and Derric Driver (2022 OSU Diversity Hall of Fame) receive recognition from Oklahoma State University.

Charlene Leubecker
B.S. C.S/ Math '87

Charlene Leubecker was named the ***2021 CAS Distinguished Alumni***. She holds Bachelor of Science degrees in Mathematics and Computer Science, awarded by Oklahoma State University in 1987. Charlene has a wealth of experience in developing and leading strategic organizational change initiatives, as well as the design, delivery, and support of enterprise-wide information assurance capabilities to enable mission objectives. For over three decades, she was dedicated to the protection of the Central Intelligence Agency's internal computer systems and was named one of Washington D.C.'s Top Women in Technology in 2015. During her career, she served within the Intelligence Community in a variety of technical and executive management positions and is a critical thinker known for her ability to rapidly transform organizational elements to meet future needs. She is equally known for her ability to develop and implement balanced solutions to complex technical challenges. Recently retired from the Central Intelligence Agency, she now leverages her experiences in safeguarding national security systems to guide a variety of companies and organizations in developing, optimizing, and implementing their own robust security programs.

Joseph Carroll
B.S. C.S. '86

Joseph Carroll was inducted into the **2022 Alumni Hall of Fame.** He graduated with a Bachelor of Science in computer science in 1986. After finishing at OSU, Carroll started his career at Ditch Witch in Perry, Oklahoma, and later moved to Tulsa to take a job with MAPCO in 1988. While in Tulsa, Carroll joined CITGO Petroleum Corporation as a Systems Engineer in 1994. During his 28 years with CITGO, he held several IT managerial positions before being named General Manager of IT and Information Security in 2019, overseeing the application and technical systems of the CITGO enterprise. In 2022, Carroll was named CITGO Chief Information Officer (CIO), a position he currently holds. Carroll's OSU roots run deep. In 2018, he was honored as an OSU Distinguished Alumni, and in 2019 he was given a Distinguished Service Award for chairing the OSU Computer Science 50th Anniversary Celebration. He currently serves on the OSU Computer Science Industry Advisory Board and on the board of the University of Houston's Gutierrez Energy Management Institute. In an effort to give back to OSU and to those students who may follow his same path, Carroll established an endowed scholarship in 2018: The Joe Carroll Endowed Scholarship. The first award will be given in 2023.

Dan Yost

B.S. C.S. '00

Dan Yost was named the **2022 CAS Distinguished Alumni**. A native of Colorado, but a fan of Stillwater, he graduated summa cum laude from OSU in 2000 with a B.S. in computer science. He is now CEO of Tri-8, Inc., which is headquartered in Stillwater. Tri-8 helps businesses streamline and automate operations so that they can grow and scale while increasing profitability. Clients have ranged in size from small mom-and-pop businesses to one of the largest enterprises in the world. Tri-8's passion lies in small- and medium-sized businesses seeking to grow via research and development and adept implementation of technology. Dan and his company have also built native products that include electronic payment processing, remote agricultural telemetry, stolen laptop tracking and encryption, RFID, and sensor-driven management of healthcare and aging-in-place for the elderly.

Dan and his wife, Stephanie, have four children, ages 11 to 18. He's a private pilot, a rather rabid sports fan, and is known for using sports analogies ad nauseum. He bleeds orange and has been told that his beard — which has its own Twitter account — resembles this.

Derric Driver

B.S. C.S. '89

Derric Driver was inducted into the **2022 Diversity Hall of Fame.** He is a Tulsa native who graduated in December 1989 with a degree in Computer Science. Declining offers at IBM and ATT, Derric accepted an offer with ExxonMobil and started his 31-year career with the company as a systems analyst in Houston. He has held a variety of IT positions, including applications development, infrastructure and operations, SAP, customer service, and most recent projects. He has also served as a financial analyst for ExxonMobil's Lubes business line. He is currently Portfolio Manager for a three-year, $50M+ global IT project to modernize and transform ExxonMobil's end-user experience. Besides Houston, other work locations have included Baton Rouge, La.; Billings, Mont.; Benicia, Calif.; Fairfax, Va.; and Curitiba, Brazil.

Derric has two passions: tennis and travel. He has been to each Grand Slam Tournament at least three times. And he has traveled to more than 80 countries (with a goal of doing four new countries annually). As an alumnus, Derric has always been a strong OSU supporter. He co-hosted the C.S. department's 50-year anniversary and sponsored a departmental scholarship. He is both a founding and current board member of OSU's Office of Institutional Diversity. Within the Houston community, he is an active member of St. John's Downtown Church and is a former board member of both the Houston Community Voice Mail and Houston Assistance Fund non-profit organizations.

RESEARCH SPOTLIGHT: CENTER FOR CYBER-PHYSICAL SYSTEMS

The Center for Cyber-Physical Systems (co-directors: Dr. J. Cecil and Dr. Blayne Mayfield) continues its active growth in research, education, and outreach activities. Some of our Center members include Dr. Chris Crick, Dr. Rittika Shamsuddin (all C.S.), Dr. Rajesh Krishnamurthy (Ag and Bio Systems), Dr. Shelia Kennison (Psychology), Dr. Miguel Pirela-Cruz (MD, Orthopedic Surgery, Dignity Regional Medical Center, Chandler, AZ), Dr. Tobias Steigleder (MD, Palliative Care, Friedrich-Alexander-University of Erlangen-Nürnberg), among others. In 2022, three collaborating members became part of our Center; they include Dr. Lara Sypniewski (OSU Vet School of Medicine), Dr. John Tetnowski (OSU Department of Communication Sciences & Disorders), and Dr. Frederic Merrienne (Arts et Metiers Institute of Technology, ENSAM, Chalon-Sur-Saone, France). A summary of the Center's key activities and highlights follow.

High school students interact with the shape modification app.

Shape Modification App completed to support cyber-manufacturing activities

The emergence of 3D Printing, as well as IoT and Cloud technologies, are transforming digital manufacturing practices worldwide. In 2022, as part of an NSF project in cyber manufacturing, Dr. Cecil's team completed the creation of a 3D Shape Modification App (for Android platforms); the general idea is based on the recognition that most designs today are variations of existing designs. Such an app will allow casual users, others involved in the Maker community, and hobbyists to modify existing 3D designs quickly using their smartphones (rather than use expensive CAD tools which run on laptops and computers). Plans are to hold a 3D design and printing contest with science museums in Oklahoma and beyond in 2023 as part of K-12 Informal STEM learning activities.

A nurse user interacting with a Mixed Reality Reversed Shoulder Surgery Simulator.

Design and Assessment of a Mixed Reality Simulator to train orthopedic surgeons

A current OCAST-funded project (Dr. Cecil, PI) involves the creation and assessment of a Mixed Reality (MR) simulator for shoulder surgery to train medical residents and surgeons in orthopedic surgery procedures. C.S. Doctoral student Alireza Milani has completed the creation of preliminary simulation modules as part of his doctoral research and visited two hospitals in Arizona in Nov 2022 as part of project activities. Dr. Miguel Pirela-Cruz (orthopedic surgeon at Dignity Regional Medical Center, Chandler, AZ) and Vern McKinney (Head ER nurse at the Dignity health center in Prescott Valley, AZ), who are part of this project team, provided feedback and validation of the simulation-based training content. An initial assessment of the simulator was also completed as part of project activities aimed at studying the effectiveness of such MR environments to support surgical training.

3D VR environment illustrating a scenario for students to introduce themselves to a class audience

Exploring the role of XR environments in helping students who stutter

The use of Extended Reality (XR) in various healthcare contexts has significant potential. Dr. Cecil's group began a new collaboration in the summer of 2022 with Dr. John Tetnowski (Professor and Jeanette Sias Endowed Chair, OSU Department of Communication Sciences & Disorders) to explore the potential of such XR environments to help students who stutter. A pilot project involved creating 3D scenarios aimed at helping such students interact virtually with other student and teacher avatars (see image below). The pilot project provided initial findings, which resulted in a research grant being awarded to Drs. Tetnowski (PI) and Cecil (Co-PI) to design and assess the impact of such XR environments in helping students.

Joshua Black presenting at the 2022 OSU summer research symposium

Virtual Learning Environments for Vet School students

One of the NSF REU projects in the summer of 2022 involved one of the undergraduate REU participants (Joshua Black) exploring the design of Virtual Reality based Learning Environments (VLE) to support learning among pre-clinical veterinary students. He worked with Dr. Cecil and Dr. Lara Sypniewski (College of Veterinary Medicine, OSU) to create a learning module to help vet students train to interact with canine patients and their owners. Using the environment created, OSU vet students were able to wear the Vive headset and interact virtually with a canine patient in a simulated 3D VR environment. Joshua also presented his research at the OSU summer research symposium held in July 2022. This research is continuing.

DR. SATHYA AAKUR WINS THE PRESTIGIOUS NSF CAREER AWARD

Sathyanarayanan Aakur, Assistant Professor in the Computer Science department at Oklahoma State University, has received a Faculty Early Career Development (CAREER) Award from the National Science Foundation (NSF). The CAREER program is one of NSF's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education, and the integration of education and research within the context of the mission of their organizations. This award, titled "CAREER: Towards Causal Multi-Modal Understanding with Event Partonomy and Active Perception," is a five-year effort totaling $514,186 that will support his work on building visual understanding agents that go beyond simple, passive recognition of events from multimodal data.

The project will explore how events are structured in multimodal data and how they can be leveraged to help design better embodied agents that can construct and leverage compositional event representations to help function in complex, real-world environments.

Sathya has been with the Department of Computer Science at Oklahoma State University since Fall 2019 when he joined as a tenure-track Assistant Professor. Prior to that, he received his Ph.D. in Computer Science and Engineering from the University of South Florida, Tampa. He received his bachelor's degree in Electronics and Communications Engineering from Velammal Engineering College, Anna University, Chennai, in 2013 and his Master's degree in Management Information Systems from the Muma College of Business at the University of South Florida, Tampa, in 2015. He has served as the Associate Editor of IEEE Robotics and Automation Letters since 2021 and has served as the Area Chair for top-tier, prestigious conferences such as IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) and ACMM Multimedia (ACM MM) in 2021 and 2022.

At OSU, he leads the Computer Vision and Understanding Lab, whose focus is on building computational models of the visual world that integrates perception and reasoning to build commonsense knowledge over time from large amounts of unlabeled data such as text, videos, and images. The group primarily works on building intelligent agents that understand the visual world beyond just recognition of objects or actions without the need for explicit human supervision, leveraging cognitive theories of event perception and commonsense reasoning. Much of the group's current work focuses on analyzing, modeling, and synthesizing complex video scenes and the semantic structure that can describe them. This year research works from the lab have resulted in publications at top-tier venues in the field of computer vision, such as the European Conference on Computer Vision (ECCV), the IEEE/CVF Winter Conference on the Applications of Computer Vision (WACV), and Pattern Recognition Letters, to name a few.

In addition to computer vision research, his group is interested in using artificial intelligence for understanding biological processes. In collaboration with colleagues from the College of Veterinary Medicine, they work on cutting-edge research to apply artificial intelligence to develop computational pipelines for detecting the presence of novel and emerging pathogens from genome data. This line of research offers an exciting alternative to traditional testing by leveraging the learning capabilities of artificial intelligence approaches to the problem of learning to detect pathogens from genome data and help improve the quality of life through early diagnosis and treatment of complex diseases to provide an acceptable and affordable option for use in diagnostic laboratories.

NOTABLE NEWS

OSU Computer Science Program Earns ABET Accreditation

Oklahoma State University's computer science program received accreditation from the Accreditation Board for Engineering and Technology (ABET) on Aug. 31. The accreditation applies retroactively from October 2020 onward and includes OSU's Stillwater, Tulsa, and online C.S. programs. The discussion of accreditation began in 2013 under former College of Arts and Sciences dean Dr. Bret Danilowicz. The decision to actually seek it, however, didn't happen until 2016, when Department Head and Computer Science Professor Dr. K.M. George got the ball rolling. The 18-month accreditation process was not an easy task, George said. With multiple steps to complete in order to even be reviewed, the computer science department faced many challenges.

Cole Hutson interacts with the cyber-physical environment's UI.

Ayrton Ledesma performing the science sampling task using the UI.

Space Cowboys excel in NASA SUITS competition

In January 2022, 9 students from Dr. Cecil's 'Introduction to Cyber-Physical Systems' course were co-authors in a refereed conference paper which was presented at the 2022 Annual AIAA Sci Tech forum. The findings in this paper were related to class project activities which involved participation in the NASA SUITS Challenge Competition. The faculty advisors for this competition Dr. Cecil, Dr. Mayfield, Dr. Rittika Shamsuddin (all C.S.), Dr. Shelia Kennison (Psychology) and Dr. Rajesh Krishnamurthy (Ag and Biosystems). The NASA SUITS (Spacesuit User Interface Technologies for Students) competition challenges students to design and create spacesuit information displays involving augmented reality (AR) environments. As NASA pursues landing astronauts on the Moon (as part of the ARTEMIS mission), one of the practices to be implemented revolves around crewmembers on spacewalks to be equipped with the appropriate human-autonomy enabling technologies necessary for lunar surface exploration. The SUITS competition open to US students target key aspects of the Artemis mission. The OSU team ('Space Cowboys') designed cyber-physical environments as well as developed HCI based designs for the cyber-physical user interfaces for collecting rock samples, navigating on the lunar surface, operating the air lock as well as communicating with mission control in Houston.

Dr. Rittika Shamsuddin

Dr. Shamsuddin wins Holistic Science Prize

Dr. Rittika Shamsuddin, Assistant Professor, received the Holistic Science Prize from the College of Arts and Sciences. Made possible through a generous donation from Professor Emeritus Hermann Burchard, this prize rewards interdisciplinary, multidisciplinary, and holistic research and the competition is open to any area of study, not just what we traditionally call "the sciences" in CAS. Dr. Shamsuddin was awarded this prize for her work, titled "*Generating Healthcare Time Series Data for Improving Diagnostic Accuracy of Deep Neural Networks*", published in the IEEE Transactions on Instrumentation and Measurement. This work, in collaboration with colleagues with the University of Texas at Dallas, proposes a guided evolutionary synthesizer (GES), a tool derived from principles of genetic algorithm, which is designed to generate artificial healthcare time series data for improving classification performance of machine learning models.

Alireza Milani at NSF EEC

Dr. Cecil's group present at NSF EEC Conference

Dr. Cecil's group participated in the 2022 annual NSF Engineering Education and Centers (EEC) Grantees conference (September 2022) in Washington DC. Alireza Milani (pictured on the left) presented a poster on an array of funded projects including our REU and Engineering education projects which involved exploration of HCI based design of XR environments in various medical, engineering and STEM learning contexts.

C.S. Students, Shubham Trehan and Udhav Ramachandran, advised by Dr. Aakur, won the Annual OSU App Competition.

Computer Vision Lab team wins OSU App Competition

A computer science team comprising of Udhav Ramachandran (freshman) and Shubham Trehan (Ph.D. Student), advised by Dr. Aakur, won the 2022 OSU App competition for their idea *BugScope*. Each year, the Oklahoma State University Annual App competition encourages students and faculty to create and develop apps focused on improving society. In collaboration with Dr. Ruth Scimeca from the College of Veterinary Medicine, their app will help users identify commonplace bugs and insect eggs that may transmit diseases using Machine Learning. The winning team received $2,000 to facilitate the development and release of their apps. The groups also will get continued support from OSU for research and development.

OSU Students with other researchers at ENSAM Chalon-Sur-Saone in France.

International summer research at ENSAM France

Dr. Cecil was awarded a 3-year NSF funded project which involves collaborating with research groups in France and Germany in HCI based design of XR environments. In the summer of 2022, three OSU students spent 6 weeks pursuing research in France at Arts et Metiers Institute of Technology, ENSAM, Chalon-Sur-Saone. One of the students, Jacob Williams, worked closely with ENSAM researchers (Dr. Frederic Merienne and Mahdiyeh Moosavi), and Dr. Cecil to create a key component of a simulation-based training environment to help train nurses in Covid contexts. A paper related to these research findings was presented at the 2022 International Conference on Digital Transformation and Intelligence conference (Malaysia) in Dec 2022.

Center for Cyber-physical System Alum joins UIUC

Dr. Avinash Gupta (pictured on the left), Ph.D. '22, joined the University of Illinois Urbana-Champaign as a Teaching Assistant Professor. He will teach in their interdisciplinary Health Technology program and conducts research in collaboration with the UIUC Health Care Engineering Systems Center. His Ph.D. research focused on the creation of a HCI based framework for the design of eXtended Reality (XR) based training simulators for the healthcare contexts.

MEET OUR NEW FACULTY

Dr. Cong Pu

Dr. Cong Pu is an assistant professor in the Department of Computer Science, Oklahoma State University (Stillwater, Oklahoma). He received Ph.D. and M.S. in Computer Science degrees from Texas Tech University, USA, and B.S. in Computer Science and Technology degree from Zhengzhou University, China. His primary research interests include network security, data privacy, applied cryptography, wireless networking, and mobile computing. Dr. Cong Pu is the director of Security & Networking (SecNet) research lab at Oklahoma State University. The mission of SecNet research lab is to advance the state-of-the-art technologies in network security, data privacy, applied cryptography, wireless networking, and mobile computing, and prepare the next generation of researchers, developers, and educators in these areas by working on cutting-edge technologies and investigating high-impact research projects.

Dr. Sharmin Jahan

Dr. Sharmin Jahan is an assistant professor in Department of Computer Science at Oklahoma State University. She completed my PhD in Computer Science from University of Tulsa. Her research focuses on dynamic security assurance for autonomous system a.k.a. self-adaptive system (SAS). This research aims to embed security awareness by interpreting dynamic operational environment with potential uncertainty using explainable AI model and enable autonomous decision-making ability within SAS to assure its optimal security compliance confidence. She is also interested in challenges related to explainable AI in security for different applications.

Dr. Anirudh Paranjothi

Anirudh Paranjothi received a B.S degree in computer science from Anna University, an M.S in computer science from Texas A&M University, and a Ph.D. in computer science from the University of Oklahoma. His primary research interests are in the areas of networking and computing with an emphasis on wireless systems. The overarching motivation of Anirudh's research is to enhance security along with efficient routing and data forwarding on complex dynamic network systems like Vehicular Ad hoc Networks (VANETs) using next-gen technologies like fog and edge computing for problems in wireless networks.

SPOTLIGHT: DEPARTMENTAL OUTREACH

C.S. Faculty help enhance K-12 computer science education through NSF program

Dr. Johnson Thomas, Professor and Graduate Program Director, led the efforts to create an outreach program to engage school teachers to enhance the computer science curriculum for K-12 students in Oklahoma. Through the Research Experience for Teachers (RET) program from the National Science Foundation. The goal of the RET program is to enhance the scientific knowledge of K-14 educators in engineering or computer science and translate their research experiences into classroom activities and curricula to broaden their students' awareness of and participation in computing and engineering pathways. The first cohort of teachers were hosted as part of the inaugural event at OSU-Tulsa in Summer 2022. Several C.S. faculty were involved in the development and implementation of the program, including Drs. Thomas, Shamsuddin, Bagavathi, and Jahan. A diverse group of teachers from different types of high schools were recruited from the Tulsa area.

RET Faculty Researchers and Research Assistants

The inaugural cohort of teachers in the 2022 edition.

The research focused on data science and machine learning covering health (covid), social media networks, security, veterinary science, to name a few. A number of papers have been submitted for publication. A number of semester time activities that involve high school students are planned. The goal is to incorporate machine learning and data science into the curriculum to produce high school graduates who will be well-prepared to meet the vast challenges and opportunities offered by data science and machine learning. The program will extend into summer 2023.

C.S. Faculty engage the next generation of Cowboys in C.S. education

The Computer Science Department hosted grandparents and grandchildren for the first time for Grandparent University (GPU), an initiative led by the OSU Alumni Association. Established in 2003, the Grandparents University initiative has welcomed OSU Legacies ages 7 to 13 and their grandparents to campus for a unique intergenerational learning experience at Grandparent University.

This year, the computer science department hosted its first iteration of the initiative in an effort led by Dr. Vishalini Ramnath, Teaching Assistant Professor, Dr. Sathya Aakur, Assistant Professor, and Ms. Cara Brun, Academic Advisor. With help from C.S. student Erin Dunlap and CPE student Tyler Graham, the C.S. team engaged 10 groups of grandparents and OSU legacies (27 people in total) in C.S. fundamentals in an interactive and fun session. Topics included artificial intelligence, building games, electric circuits, and Sphero balls. everal Christmas gift requests were overheard with the Snap Circuits and Sphero Balls. rin and Tyler used their experience with working with children in STEM education from their work at ICode Edmond, who helped finetune the program for a more interactive experience.

Erin helps participants through video game coding.

Dr. Ramnath problem solves a circuit board at GPU.

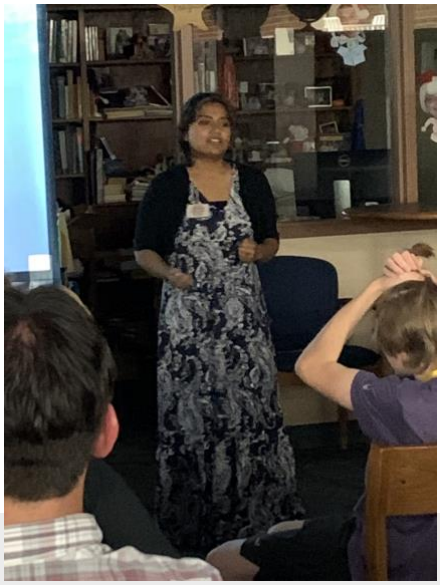
GPU student plays with their own video game creation.

Erin talks with GPU students.

C.S. Faculty engage with Stillwater High School teachers and students

Dr. Blayne Mayfield, Interim Department Chair, Dr. Rittika Shamsuddin, Assistant Profesor, and Ms. Cara Brun, Academic Advisor, engaged with Stillwater High School's faculty and students to provide encouragement for participation in programs organized by the C.S. department such as the RET program.

Dr. Mayfield talks with high school students about the evolution of the Computer Science industry.



Dr. Shamsuddin talks with high school students about programming.

High school technology instructor, Tanner Rivera, tries on a Nintendo Power Glove.

SPOTLIGHT: STUDENT ENGAGEMENT

The C.S. department engaged in several activities to engage with students throughout the year to improve their morale and maintain a positive outlook. Many of these efforts were led by the faculty, with tremendous help from our staff, Indu Grover, Mohammad Sherbini, and Russ Smith, along with our academic advisor Ms. Cara Brun.

C.S. Student Awards Banquet

The annual C.S. Student Awards program, which debuted in 2021, was successfully conducted again in 2022, honoring outstanding undergraduate and graduate students. The various awards that were presented include Outstanding Computer Science Scholar, Outstanding Computer Science Researcher, and Outstanding Computer Science Leadership, with awardees from undergraduate and graduate students. The awardees include Brennan Schlittler (BS C.S.) for Outstanding Undergraduate Leadership, Farhan Tanvir (Ph.D.) for Outstanding Graduate Researcher and Graduate Student Leadership, Varun Puram (Ph.D.) for Outstanding Graduate Leadership, Zuqiang Ke (Ph.D.) for Outstanding Graduate Research, Dingyi Kang (MS C.S.) for Outstanding Graduate Scholar, Khaled Saifuddin (Ph.D.) for Outstanding Graduate Research, and Michelle Echeverri (BS C.S.), for Outstanding Undergraduate Research.

Drs. Shamsuddin and Mayfield welcome student awardees and attendees to the ceremony.

Winners of the 2022 C.S. student awards. From the left: Dingyi Kang (MS C.S.), Varun Puram (Ph.D.), Farhan Tanvir (Ph.D.) Zuqiang Ke (Ph.D.), and Brennan Schlittler (BS C.S.).

Student Activities

Nicholas Goertemiller demonstrates his Senior Capstone Project, a new course that provides an opportunity for students to work on a semester-long project with students in other STEM majors.

Devyn Hubbard and Tate Armstrong represent the ACM Student Chapter and the Video Game Developers Club at the OSU Organizational Fair.

Open House and Graduation Reception

Ms. Cara Brun and Dr. Mayfield receive Fall 2022 graduates before commencement.

Graduating BS C.S. students

Faculty engage with students at the department open house to welcome students to participate in discussion with the faculty and staff.

Faculty and staff threw a graduation party for the MS C.S. students graduating in Fall 2022.

DEPARTMENT PUBLICATIONS

Our faculty and students were actively engaged in research that yielded many publications at top-tier venues in different areas of computer science such as cyber-physical systems, computer vision, data mining, healthcare informatics, and theoretical computer science, to name a few. A selection of the publications is listed below.

1. Gupta A, Cecil J, Pirela-Cruz M, Shamsuddin R, Kennison S, Crick C. An Investigation on the Role of Affordance in the Design of Extended Reality based Environments for Surgical Training. In 2022 IEEE International Systems Conference (SysCon) 2022 Apr 25 (pp. 1-7). IEEE.
2. Cecil J, Gupta A, Kauffman S, Shamsuddin R, Krishnamurthy R, Mayfield B, Jin Y, Conley B, Echeverri M, Hutson C, Newport C. The Design of a HCC Based Mixed Reality User Interface to Support Training of Astronauts for NASA's Moon Mission. In AIAA SCITECH 2022 Forum 2022 (p. 0214).
3. Seol J, Ke J, Joshi S, Park N, Kancharla A. A Bivariate Performance Model across On-and Off-Chain in A NFT (Non-Fungible Token) Chain. In 2022 Fourth International Conference on Blockchain Computing and Applications (BCCA) 2022 Sep 5 (pp. 159-166). IEEE.
4. Gupta, A., Cecil, J., Pirela-Cruz, M (2023). An HXRI-based Design of Extended Reality (XR) Environments for Surgical Training. Accepted for presentation at the International Conference on Human-Computer Interaction. July 23-28, 2023
5. Sadeghi Milani, A., Cecil, J., Pirela-Cruz, M & Kennison, S(2023). Role of HCI-based criteria in supporting the training of surgical residents using Mixed Reality environments. Accepted for presentation at the International Conference on Human-Computer Interaction. July 23-28 2023
6. Sadeghi Milani, A., Cecil-Xavier, A., Gupta, A., Cecil, J., & Kennison, S. (2022). A Systematic Review of Human–Computer Interaction (HCI) Research in Medical and Other Engineering Fields. International Journal of Human–Computer Interaction, in press, expected publication 2023.

7. Gupta, A., Cecil, J., & Pirela-Cruz, M. (2022, March). Role of Dynamic Affordance and Cognitive Load in the Design of Extended Reality based Simulation Environments for Surgical Contexts. Proceedings of the 2022 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW) (pp. 652-653).
8. Moosavi, M., Williams, J., Guillet, C., Merienne, F., Cecil, J., Pickett, M. Disassociation of Visual-proprioception feedback to Enhance Endotracheal intubation, Proceedings of 2022 International Conference on Digital Transformation and Intelligence, Engineering, Science and Technology Congress (ESTCON 2022), Kuching, Sarawak, Malaysia, Dec 1-2 2022.
9. Ke Z, Seol J, Kancharla A, Park N. Performance Modeling and Assurance for Cross Chain. In 2022 Fourth International Conference on Blockchain Computing and Applications (BCCA) 2022 Sep 5 (pp. 305-311). IEEE.
10. Kamal S, Gullic J, Bagavathi A. Modeling Polarization on Social Media Posts: A Heuristic Approach Using Media Bias. In International Symposium on Methodologies for Intelligent Systems 2022 (pp. 35-43). Springer, Cham.
11. Tarnowska KA, Bagavathi A, Ras ZW. High-Performance Actionable Knowledge Miner for Boosting Business Revenue. Applied Sciences. 2022 Dec 3;12(23):12393.
12. Pal D, Khethavath P, Thomas JP, Mangla U. KeyPIn–mitigating the free rider problem in the distributed cloud based on Key, Participation, and Incentive. Journal of Cloud Computing. 2022 Dec;11(1):1-4.
13. Puram V, Kang D, George KM, Thomas JP. Algorithm to build quantum circuit from classical description of DFSM. In 2022 IEEE International Conference on Quantum Computing and Engineering (QCE) 2022 Sep 18 (pp. 745-748). IEEE.
14. Toulouse M, Dai HK, Le TG. Distributed load-balancing for account-based sharded blockchains. International Journal of Web Information Systems. 2022 Jul 28(ahead-of-print).
15. Dai HK, Furusawa K. Improving the Storage Utilization of 0-Complete Trees as Index Structures. In International Conference on Future Data and Security Engineering 2022 (pp. 88-102). Springer, Singapore.
16. Toulouse M, Dai HK, Nguyen QL. A Consensus-Based Load-Balancing Algorithm for Sharded Blockchains. In International Conference on Future Data and Security Engineering 2021 Nov 24 (pp. 239-259). Springer, Cham.
17. Ramamurthy P, Aakur SN. ISD-QA: Iterative Distillation of Commonsense Knowledge from General Language Models for Unsupervised Question Answering. In 2022 26th International Conference on Pattern Recognition (ICPR) 2022 Aug 21 (pp. 1229-1235). IEEE.
18. Aakur SN, Kundu S, Gunti N. Knowledge guided learning: Open world egocentric action recognition with zero supervision. Pattern Recognition Letters. 2022 Apr 1;156:38-45.
19. Aakur S, Sarkar S. Actor-Centered Representations for Action Localization in Streaming Videos. In European Conference on Computer Vision 2022 (pp. 70-87). Springer, Cham.
20. Bal AB, Mounir R, Aakur S, Sarkar S, Srivastava A. Bayesian Tracking of Video Graphs Using Joint Kalman Smoothing and Registration. In European Conference on Computer Vision 2022 (pp. 440-456). Springer, Cham.
21. Vishal Pallagani, Priyadharsini Ramamurthy, Vedant Khandelwal, Revathy Venkataramanan, Kausik Lakkaraju, Sathyanarayanan N. Aakur, Biplav Srivastava. A Rich Recipe Representation as Plan to Support Expressive Multi-Modal Queries on Recipe Content and Preparation Process. ICAPS 2022 Workshop on Knowledge Engineering for Planning and Scheduling (KEPS), 2022
22. Mounir R, Aakur S, Sarkar S. Self-supervised temporal event segmentation inspired by cognitive theories. In Advanced Methods and Deep Learning in Computer Vision 2022 Jan 1 (pp. 405-448). Academic Press.
23. Trehan S, Aakur SN. Towards Active Vision for Action Localization with Reactive Control and Predictive Learning. In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision 2022 (pp. 783-792).

24. Pu C, Wall A, Choo KK. Bilinear Pairing and PUF Based Lightweight Authentication Protocol for IoD Environment. In 2022 IEEE 19th International Conference on Mobile Ad Hoc and Smart Systems (MASS) 2022 Oct 19 (pp. 115-121). IEEE.

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