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News from UB's Department of Computer Science and Engineering | June 2023

Summer Newsletter

Chair's Note

Dear Colleagues, Alumni, and Friends,

We hope you are enjoying the start of warm

weather! We would like to share exciting news from our department. We are thrilled with our faculty's record-breaking achievements in research funding, which has seen a 30% increase from last year. This includes large grants from the National Science Foundation to establish an Al Institute and to support a cybersecurity program at UB. A number of CSE



faculty have received prestigious awards recognizing their scholarly achievements. We are incredibly proud of them all. As we celebrate these accomplishments, we turn our

attention to the exceptional Class of 2023. Congratulations to each and every one of you for reaching this milestone in your academic journey! We wish you all the best in your future endeavors.

Sincerely, All joule. Jinhui Xu

Professor and Department Chair

Faculty News

UB awarded \$20 million to establish institute to create Al

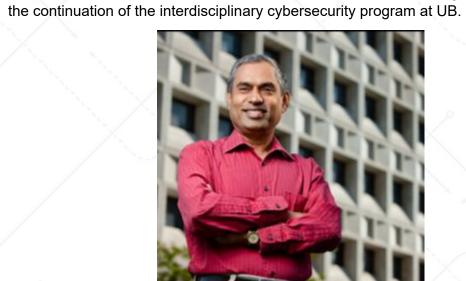


UB has secured an incredible grant from the National Science Foundation to create a nationwide institute dedicated to advancing artificial intelligence systems designed to identify and support young children facing difficulties with speech and language processing.

This ambitious initiative, spanning five years and worth \$20 million, aims to tackle the pressing shortage of speech-language pathologists across the country. By focusing on children between the ages of 3 and 10, who are particularly vulnerable to academic and socioemotional setbacks, the project aims to mitigate the additional challenges brought about by the COVID-19 pandemic. Read more.

UB National Science Foundation (NSF) Awards

The National Science Foundation has awarded Professor Shambhu Upadhyaya with a \$3,418,604 grant for CyberCorps(R): Scholarship for Service: An Interdisciplinary Cybersecurity Program with Technical and Managerial Paths. This grant allows for





Renowned CSE Professor Atri Rudra secured a substantial funding of \$377,000 for his visionary project titled "Collaborative Research: Hardware-Aware Matrix Computations for Deep Learning Applications." This funding will empower him to delve into cutting-edge research, addressing the critical intersection of hardware optimization and matrix computations, with a specific focus

on enhancing deep learning methodologies.

Dr. Yaxiong Xie was awarded a generous sum of \$175,000 for his groundbreaking research on IMR: MT-Fine-Grained Telemetry for Next-Generation Cellular Access Networks (NG-Scope). This prestigious recognition came in collaboration with the esteemed trustees of Princeton University.





Distinguished CSE Professor Alan Hunt received \$50,000 to fund his project titled: I-Corps: A machine learning model based on neural networks trained to recognize correlations and patterns that indicates possible medical complications.

Kenny Joseph receives ONR award to Assess the Influence of China's Belt and Road Initiative in Local Communities at Global



Kenny Joseph won Minerva's FY22 DECUR Partnership competition, securing \$400,000 for his project investigating the influence of China's Belt and Road Initiative (BRI) on global local communities. The BRI's use of soft power raises concerns for US policymakers, but assessing its impact on communities is challenging due to limited access. To address this, the project aims to develop new computational methods and tools to analyze the local effects of BRI investments in hard-to-reach areas. By enhancing the defense community's understanding of Chinese soft power in difficult-to-access environments, this project seeks to strengthen assessment capabilities.

Scalable Algorithms for the Vlasov-Poisson-Landau System



Matthew Knepley was awarded \$170,000 to work with Dr. Mark Adams of Lawrence Berkeley National Laboratory to investigate algorithms which preserve the metriplectic structure of the evolution equations for high temperature plasmas. A CDSE graduate student (Dan Finn) and a CSE postdoc (Joe Pusztay, who recently graduated) will pursue this work. This duo has recently presented their work at an international plasma physics conference in Leipzig, Germany.

Spotlight on Students

UB CSE students won the Engineering Projects in Community Service (IEEE EPICS) Award

EPICS (Engineering Projects in Community Service) in IEEE was created to meet a two-fold challenge: providing community service organizations with the technology they need to improve and deliver services and providing students with educational experiences to broaden their skills. It has facilitated more than 180 projects in over 30 countries and has impacted more than 250,000 people through university and K-12 initiatives.

The CSE team is made up of Ph.D. students, Anarghya Das (project leader) and Huining Li, and CSE undergrad, Alex Gherardi, and faculty advisor Dr. <u>Wenyao Xu</u>.

EPICS IN IEEE

The project is entitled "MindVoice: EEGenhanced Voice Assistance for Older Adults", with the purpose to fuse brainwave and voice data together to have a better understanding of user's intention. The application will target the

users with cognitive deficits, such as Alzheimer's, Autism, etc., when they use voice-user interface (e.g., Amazon Dot). The team will work with a Buffalo local NGO, Bridges from Boarders, Inc. to help make this project accessible to the target audience. The team was awarded \$1420 with the option to receive additional funding following the prototype's success.

Designing AI defibrillators, UB students rank highly in TinyML competition



University at Buffalo students have placed near the top of an international competition meant to inspire an artificial intelligence revolution in life-saving defibrillators. The UBPercept team consisting of Pranay Meshram/MS, Changjae Lee/PHD, and Tianchen Yu/MS -- jointly advised by Jinjun

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<u>Xiong</u> and <u>Karthik Dantu</u> earned fifth place out of more than 150 entrants in the TinyML Design Contest. <u>Read More</u>

Featured Alumni

UB, partners awarded \$2M to study equitable grading in computer education, Adrienne Decker PhD '07

students of color."



"Grading practices centered around point deductions have the potential to impede student achievement and are susceptible to implicit biases that disproportionately affect students from disadvantaged socioeconomic backgrounds and

Adrienne Decker, PhD, an esteemed associate professor of engineering education, as well as an adjunct professor in UB's Department of Computer Science and Engineering, expressed the purpose of their project, stating, "Through this initiative, our aim is to empower faculty members to embrace equitable grading practices within their computer science classrooms. Our ultimate goal is to develop comprehensive resources and remove barriers to the adoption of these proven techniques, which have demonstrated remarkable efficacy in enhancing student learning." Read More

In Memoriam

UB Davis Hall conference room dedicated to groundbreaking computer scientist Sargur Srihari



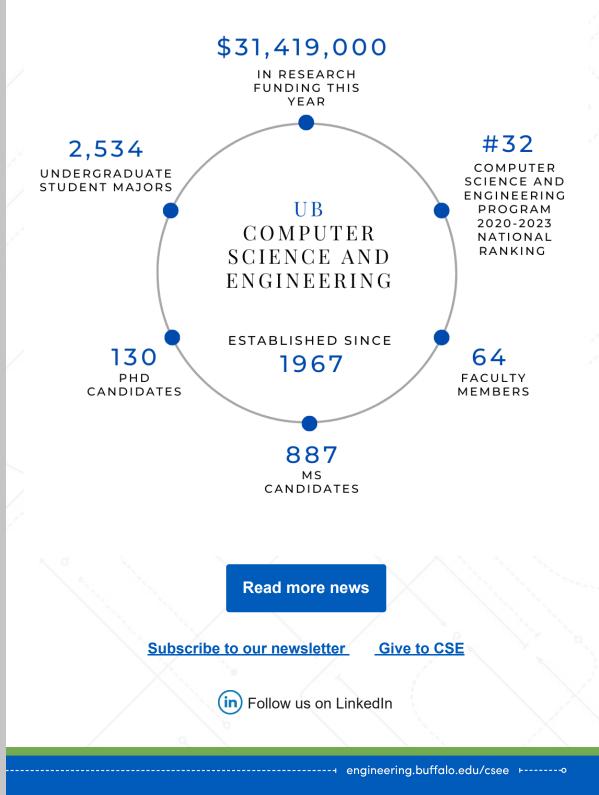
Sargur "Hari" Srihari was, in many ways, a visionary. The professor of computer science taught machines to read handwriting, laying the groundwork for even more significant advancements in machine learning and artificial

113Y Davis Hall will now be known as the Sargur Srihari Conference Room and feature a plaque and other items that commemorate Srihari's legacy.

Located in SEAS' signature building, the space was formally dedicated with a ceremony last week attended by Dean Lewis and other university leadership, as well as Srihari's colleagues, students and family.

"With this dedication, we recognize Hari's outstanding contributions to our university, and in particular, our School of Engineering and Applied Sciences," said UB President Satish Tripathi, also a professor of computer science. "This installation shows that Hari's name will always have a place of prominence in our engineering school, just as his memory will always stay in our hearts."

Read More



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