Volume 26, Issue 2
Winter '26

CECS eNEWS

Center for Embedded and Cyber-physical Systems, University of California, Irvine

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Hoang Nhu Visit



On January 23, 2026, CECS hosted a distinguished delegation of industry leaders and UCI faculty led by Hoang Nhu, CEO and Founder of NousLogic Telehealth.

The delegation included Antonio Frangieh, Associate Professor of Medicine and Director of the Structural Heart Program at UCI; Mehdi Hatamian, Founder of 2Pi-Sigma Corp; Sean Young from UCI's Departments of Emergency Medicine and Informatics; and David Garrett, Vice President of Technology and Innovation at Synaptics and Executive Member of the MECPS Industry Advisory Board. The delegation was also joined by EECS Chair Lee Swindlehurst and MECPS Director Amy Pham.

The visit featured presentations by CECS Director Fadi Kurdahi, MECPS Graduate Advisor Rainer Doemer and RISE Director Mohammad Al Faruque. Guests also toured research facilities including RISE, the AICPS Lab, and the VLSI System Design and Design Automation of Digital Systems Lab.

The visit highlighted CECS, RISE, and the MECPS program and created opportunities for discussion on collaborative research, industry partnerships, and advancing interdisciplinary innovation.

Hoang Nhu, a technology entrepreneur focused on AI-enabled remote patient monitoring (RPM) and IoT technologies, along with his sister Thuc Trinh Thi Nhu, recently made a philanthropic pledge to the UCI Samueli School of Engineering, supporting innovation within the newly renamed Nhu Department of Electrical Engineering and Computer Science.

MECPS Capstone Kick-Off Meeting



On March 10, 2026, the MECPS program officially launched the project season with the 2026 Capstone Kick-Off Meeting. This pivotal event brought together industry mentors, faculty advisors, and students for their first in-person collaboration of the academic year.

The meeting provided a dedicated space for teams to review project outlines, align on technical expectations, and establish rigorous planning milestones. By bridging the gap between academic theory and industry application, the kick-off set the foundation for the innovative engineering solutions the 2025-26 cohort will develop over the coming months.

2026 MECPS Picnic Palooza



On Friday, March 20, 2026, the MECPS program hosted the 2026 Picnic Palooza at Mason Regional Park. The event brought together 21 students and staff for a potluck-style afternoon of food and community building.

The highlight of the day was a high-energy trivia game. Students split into two teams to solve riddles about various countries; the first team to correctly identify the nation and retrieve its corresponding flag earned a point for their side. Set against a backdrop of music and a relaxed park atmosphere, the picnic provided the perfect setting for the cohort to mingle and enjoy time together outside of the classroom.

Prof. Huang and Prof. Li Received Amazon Research Awards

CECS-affiliated faculty Sitao Huang and Zhou Li are among 63 worldwide recipients of the highly competitive Amazon Research Award. This honor provides unrestricted funds and AWS promotional credits to support trailblazing research in computer science and engineering.



Prof. Sitao Huang was recognized for his project on "Automatic Kernel Synthesis," which aims to create next-generation compilation flows that automatically optimize the performance of complex machine learning programs.

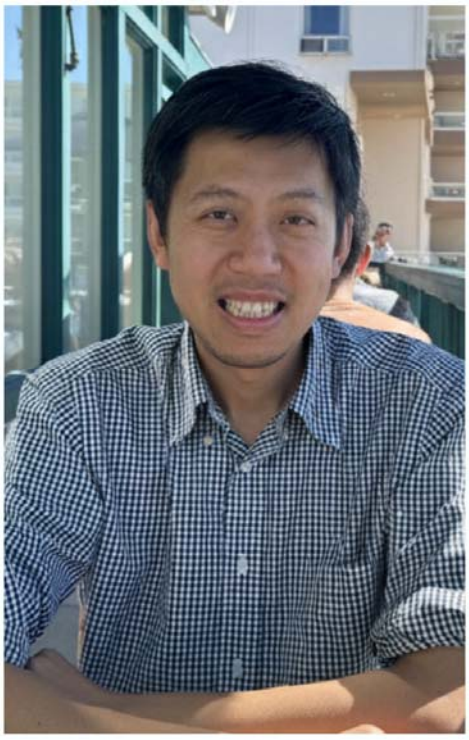


Prof. Zhou Li received the award for his project "Precise and Analyst-friendly Attack Provenance," which integrates Large Language Models (LLMs) to help security analysts more accurately reconstruct and identify sophisticated cyberattacks.

In addition to funding, both professors gain access to over 700 Amazon public datasets and specialized AWS AI/ML tools to accelerate their work.

Congratulations to Professors Huang and Li on this achievement!

Prof. Li and Team Won Best Paper Award at NDSS 2026




CECS Associate Professor Zhou Li and doctoral student Danyu Sun won a Best Paper Award at the 2026 Network and Distributed System Security (NDSS) Symposium in San Diego. They were one of only 10 teams recognized at the prestigious event.

Their award-winning research introduces a new system that incorporates evidence of "benign" behavior to reduce false positives in cybersecurity detection. By leveraging large-scale real-world data and modern AI techniques, the system significantly reduces alert fatigue while maintaining strong performance. The research was conducted in collaboration with Palo Alto Networks and has already been deployed in a production environment.

Congratulations to Prof. Li and Danyu Sun for this recognition!

Jooyoung Lee - "GOAL: An Industrially Validated Global Optimization..."



Title: GOAL: An Industrially Validated Global Optimization Framework for Advanced Macro Placement in Semiconductor Design

Speaker: Prof. Jooyoung Lee

Date and Time: Friday, February 13, 10:30a.m.

Location: EH 2430

Hosted By: Prof. Ian Harris

Yutong Wang - "A Pareto-Optimal Compiler for Mapping Task Graphs..."

Title: A Pareto-Optimal Compiler for Mapping Task Graphs to Truly Scalable Grids of Processing Cells

Speaker: Ph.D Candidate Yutong Wang

Date and Time: Monday, March 2, 1p.m.

Location: EH 3206

Committee: Prof. Brian Demsky, Prof. Zhou Li



Postdoc Profile: Deepak Prakash Kumar

Dr. Deepak Prakash Kumar is currently a postdoctoral scholar at the Center for Embedded and Cyber-physical Systems (CECS) and the Center for Resilient Autonomous Systems at UC Irvine. Working under the mentorship of Professors Pramod Khargonekar and Mohammad Al Faruque, his research focuses on advancing physical AI for safe multi-agent collaboration in partnership with the Air Force Research Lab.



Dr. Kumar is also developing algorithms for human-humanoid robot teaming at construction sites in collaboration with Genova Construction. Beyond his primary research, he is dedicated to mentoring students through hands-on experimental demonstrations using advanced robotics, including the Unitree Go2 and Unitree G1.

He earned his Ph.D. in Mechanical Engineering from Texas A&M University, where his work centered on trajectory planning and task allocation for autonomous vehicles across ground, aerial, and space domains. Following his tenure at UCI, Dr. Kumar will join the Department of Aerospace Engineering at the Indian Institute of Technology Bombay as an Assistant Professor in Summer 2026.

Publications

The following papers were published by CECS affiliates from January 2026 through March 2026 (and unreported papers from previous eNews).

Author, Title, Publication **Conference Proceedings**

Simon Guo, Conan Truong, Brian Demsky: **CXLMC: Model Checking CXL Shared Memory Programs**. ASPLOS (2) 2026: 546-562, March 22-26, 2026, Pittsburgh, PA, USA

Dongjoo Seo, Jihyeon Jung, Yeohwan Yoon, Ping-Xiang Chen, Yongsoo Joo, Sung-Soo Lim, Nikil D. Dutt: **DPAS: A Prompt, Accurate and Safe I/O Completion Method for SSDs**. FAST 2026: 381-397, February 24-26, 2026, Santa Clara, CA, USA

Yezi Liu, Hanning Chen, Yanning Shen, Mohsen Imani: **Debias Once for All: A Data-Centric Strategy for Fair Machine Learning**. WSDM 2026: 447-457, February 22-26, 2026, Boise, ID, USA

Ye Qiao, Zhiheng Chen, Yifan Zhang, Yian Wang, Sitao Huang: **TeLLMe: An Efficient End-to-End Ternary LLM Prefill and Decode Accelerator with Table-Lookup Matmul on Edge FPGAs**. FPGA 2026: 247-257, February 22-24, 2026, Seaside, CA, USA

Yian Wang, Ye Qiao, Sitao Huang, Hyoukjun Kwon: **APEX-Q: Arbitrary-dimension Product-EXtension Quantization for Accelerated LLM Deployment (Student Abstract).** AAAI 2026: 41424-41426, January 20-27, 2026, Singapore

Ye Qiao, Sitao Huang: **Q-ROAR: Outlier-Aware Rescaling for RoPE Position Interpolation in Quantized Long-Context LLMs (Student Abstract)**. AAAI 2026: 41359-41361, January 20-27, 2026, Singapore

Jingcheng Li, Ye Qiao, Sitao Huang: **HARK: Hierarchical Agentic Retrieval with Keyframing for Video Understanding (Student Abstract**). AAAI 2026: 41266-41268, January 20-27, 2026, Singapore

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Author, Title, Publication — Journal Articles

Ahmet M. Elbir, Abdulkadir Celik, Asmaa Abdallah, Ahmed M. Eltawil: **Boosting Spectral Efficiency via Spatial Path Index Modulation in RIS-Aided mMIMO**. IEEE Trans. Wirel. Commun. 25: 14382-14396, March, 2026

Madi Makin, Abdulkadir Celik, Sultangali Arzykulov, Ahmed M. Eltawil, Galymzhan Nauryzbayev: **A Unified Optimization Framework for Multiple Access in STAR-RIS-Aided Full-Duplex Systems**. IEEE Open J. Commun. Soc. 7: 2646-2663, March, 2026

Olga Krestinskaya, Mohammed E. Fouda, Ahmed M. Eltawil, Khaled N. Salama: **Joint Hardware-Workload Co-Optimization for In-Memory Computing Accelerators**. IEEE Access 14: 36892-36910, March, 2026

Deniz Najafi, Hamza Errahmouni Barkam, Zahra Ghanaatian, Mehrdad Morsali, Hanning Chen, Tamoghno Das, Arman Roohi, Pietro Mercati, Mahdi Nikdast, Mohsen Imani, Shaahin Angizi: **Opto-Aligner: Optical Near-Sensor Architecture for Accelerating DNA Pre-Alignment Filtering**. IEEE J. Emerg. Sel. Topics Circuits Syst. 16(1): 124-136, March, 2026

Francesco Malandrino, Giuseppe Di Giacomo, Marco Levorato, Carla-Fabiana Chiasserini: **Achieving Machine Learning Dependability Through Model Switching and Compression**. IEEE Trans. Mob. Comput. 25(3): 3889-3904, March, 2026

Ziqin Chen, Magnus Egerstedt, Yongqiang Wang: **Ensuring Truthfulness in Distributed Aggregative Optimization**. IEEE Trans. Autom. Control. 71(2): 1175-1190, February, 2026

Olga Krestinskaya, Mohammed E. Fouda, Ahmed M. Eltawil, Khaled N. Salama: **CIMNAS: A Joint Framework for Compute-In-Memory-Aware Neural Architecture Search**. IEEE Trans. Circuits Syst. Artif. Intell. 3(1): 48-60, February, 2026

Prathyush Poduval, Hamza Errahmouni Barkam, Xiangjian Liu, Sanggeon Yun, Yang Ni, Zhuowen Zou, Nathaniel D. Bastian, Mohsen Imani: **Optimal hyperdimensional representation for learning and cognitive computation**. Frontiers Artif. Intell. 9, February, 2026

David R. Martin, Brooks A. Butler, Scott Nivison, Magnus Egerstedt, Mohammad Abdullah Al Faruque, Pramod P. Khargonekar: **Collaborative Task Allocation for Heterogeneous Multi-Robot Systems Through Iterative Clustering**. IEEE Robotics Autom. Lett. 11(1): 33-40, January, 2026

Rajat Bhattacharjya, Arnab Sarkar, Ish Kool, Sabur Baidya, Nikil D. Dutt: **ACCESS-AV: Adaptive Communication-Computation Codesign for Sustainable Autonomous Vehicle Localization in Smart Factories**. ACM Trans. Embed. Comput. Syst. 25(1): 13:1-13:24, January, 2026

Sanggeon Yun, Ryozo Masukawa, Raheeb Hassan, Minhyoung Na, Mohsen Imani: **Contextual Fusion Strategies for Multimodal GNN-Based Reasoning: Performance and Computational Trade-Offs**. IEEE Access 14: 13702-13711, January, 2026

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Author, Title, Publication **Other Publications**

Tianyu Zhao, Siqi Li, Yasser Shoukry, Salma Elmalaki: **Can LLMs Discern the Traits Influencing Your Preferences? Evaluating Personality-Driven Preference Alignment in LLMs**. CoRR abs/2602.07181, March, 2026

Yutong Song, Shiva Shrestha, Chenhan Lyu, Elahe Khatibi, Pengfei Zhang, Honghui Xu, Nikil D. Dutt, Amir-Mohammad Rahmani: **MedSpeak: A Knowledge Graph-Aided ASR Error Correction Framework for Spoken Medical QA**. CoRR abs/2602.00981, February, 2026

Cheonkam Jeong, Jessica Liao, Audrey Lu, Yutong Song, Christopher Rashidian, Donna Krogh, Erik Krogh, Mahkameh Rasouli, Jung-Ah Lee, Nikil D. Dutt, Lisa M. Gibbs, David Sultzer, Julie Rousseau, Jocelyn Ludlow, Margaret Galvez, Alexander Nuth, Chet Khay, Sabine Brunswicker, Adeline Nyamathi: **DementiaBank-Emotion: A Multi-Rater Emotion Annotation Corpus for Alzheimer's Disease Speech (Version 1.0).** CoRR abs/2602.04247, February, 2026

Ibrahim Albool, Malak Gamal El-Din, Salma Elmalaki, Yasser Shoukry: **From Dead Neurons to Deep Approximators: Deep Bernstein Networks as a Provable Alternative to Residual Layers**. CoRR abs/2602.04264, February, 2026

William Youngwoo Chung, Calvin Yeung, Hansen Jin Lillemark, Zhuowen Zou, Xiangjian Liu, Mohsen Imani: **Geometric Priors for Generalizable World Models via Vector Symbolic Architecture**. CoRR abs/2602.21467, February, 2026

Calvin Yeung, Ali Zakeri, Zhuowen Zou, Mohsen Imani: **Coupled Inference in Diffusion Models for Semantic Decomposition**. CoRR abs/2602.09983, February, 2026

Ryozo Masukawa, Sanggeon Yun, Hyunwoo Oh, SuhgHeon Jeong, Raheeb Hassan, Hanning Chen, Wenjun Huang, Mahdi Imani, Pietro Mercati, Nathaniel D. Bastian, Mohsen Imani: **n-Musketeers: Reinforcement Learning Shapes Collaboration Among Language Models**. CoRR abs/2602.09173, February, 2026

Sanggeon Yun, Ryozo Masukawa, SungHeon Jeong, Wenjun Huang, Hanning Chen, Mohsen Imani: **Fair Context Learning for Evidence-Balanced Test-Time Adaptation in Vision-Language Models**. CoRR abs/2602.07027, February, 2026

Sanggeon Yun, Raheeb Hassan, Ryozo Masukawa, Sungheon Jeong, Mohsen Imani: **HopFormer: Sparse Graph Transformers with Explicit Receptive Field Control**. CoRR abs/2602.02268, February, 2026

Sungheon Jeong, Sanggeon Yun, Ryozo Masukawa, Wenjun Haung, Hanning Chen, Mohsen Imani: **Internal Flow Signatures for Self-Checking and Refinement in LLMs**. CoRR abs/2602.01897, February, 2026

Yonatan Gizachew Achamyeleh, Harsh Thomare, Mohammad Abdullah Al Faruque: **HELIOS: Hierarchical Graph Abstraction for Structure-Aware LLM Decompilation**. CoRR abs/2601.14598, January, 2026

Iman Sharifi, Mahyar Ghazanfari, Abenezer Taye, Peng Wei, Maheed H. Ahmed, Hyeong Tae Kim, Mahsa Ghasemi, Vijay Gupta, Noah Dahle, Robert Canady, Abel Díaz-González, Austin Coursey, Bryce Bjorkman, Cailani Lemieux Mack, Bryan C. Ward, Xenofon D. Koutsoukos, Gautam Biswas, Heber Herencia-Zapana, Saqib Hasan, Isaac Amundson, Filippos Fotiadis, Ufuk Topcu, Junchi Lu, Qi Alfred Chen, Nischal Aryal, Amer Ibrahim, Abdul Karim Ras, Amir Shirkhodaie: **A Survey of Security Challenges and Solutions for UAS Traffic Management (UTM) and small Unmanned Aerial Systems (sUAS).** CoRR abs/2601.08229, January, 2026

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Author, Title, Publication **Other Publications**

Yutong Song, Jiang Wu, Shaofan Yuan, Chengze Shen, Jian Wang, Amir M. Rahmani, Nikil D. Dutt, Yu Wang: **Styles + Persona-plug = Customized LLMs**. CoRR abs/2601.06362, January, 2026

Yutong Song, Jiang Wu, Kazi Sharif, Honghui Xu, Nikil D. Dutt, Amir M. Rahmani: **DemMA: Dementia Multi-Turn Dialogue Agent with Expert-Guided Reasoning and Action Simulation.** CoRR abs/2601.06373, January, 2026

Ruoyu Lin, Magnus Egerstedt: **Stochastic Control Barrier Functions under State Estimation: From Euclidean Space to Lie Groups**. CoRR abs/2601.16198, January, 2026

Kuilian Yang, Li Zhang, Ahmed M. Eltawil, Khaled Nabil Salama: **Sparsity-Aware Streaming SNN Accelerator with Output-Channel Dataflow for Automatic Modulation Classification**. CoRR abs/2601.02613, January, 2026

Yurun Song, Jiong Yin, Rongjunchen Zhang, Ian G. Harris: **Compress to Focus: Efficient Coordinate Compression for Policy Optimization in Multi-Turn GUI Agents**. CoRR abs/2601.11631, January, 2026

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