Chinese Institute of Engineers · USA
NEW MEXICO CHAPTER
新墨西哥州华人科工会
Association of Chinese-American Engineers and Scientists NM

ACES-NM 2026 Spring Seminar

Date: April 18, 2026
Time: 10:00 AM – 12:20 PM

Location: Room 3720, UNM Domenici Center for HSE
1001 Stanford Dr NE, Albuquerque, NM 87106

Agenda

1. 10:00 – 10:15 Sign-in & Registration
2. 10:15 – 10:20 CIE-NM Introduction and Updates
3. 10:20 – 11:00 Presentation 1
4. 11:10 – 11:50 Presentation 2
5. 11:50 – 12:20 Panel discussion
6. 12:20 – 13:20 Lunch

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Membership Options:

- **Lifetime Membership – $100**.
- **Annual Membership – $15 per year.**

Please bringing cash or a check addressed to the Chinese Institute of Engineers of New Mexico (CIE-NM). Check is preferred.

Speaker 1: Dr. Xin Chen

Title: *"Towards the Resilience of GPU Power Capping Against Power Meter Errors"*

Abstract:

Power capping has been widely adopted to reduce the costs of AI data centers, by dynamically capping the power consumption of GPU servers below a desired limit. However, existing power capping solutions heavily rely on power meters to measure the server's power consumption online and then perform GPU frequency scaling to control power. Unfortunately, unlike other sensors, power meters can often have errors due to aging or environmental disturbances, which can result in catastrophic consequences to data centers. In this talk, we present a data-driven online control framework, which can be viewed as a Simplex architecture, to improve the resilience of a given GPU power capping strategy against possible power meter errors. Our approach mainly consists of a data-driven predictor and an online decision maker. The data-driven predictor is used to estimate the current power consumption of a GPU server based on a select set of relevant features. The prediction model is obtained via a novel piecewise abstraction methodology that guarantees the probably approximate correctness of the model. In every control period, the decision maker assesses the reliability of the power meter reading based on the data-driven model prediction and determines the appropriate control strategy. We evaluate our approach using various settings both on a hardware GPU testbed and in simulation. The results show that our framework can significantly improve the resilience of an existing power capping solution with a minor performance loss.

Biography:

Dr. Xin Chen is an assistant professor in the Department of Computer Science at the University of New Mexico. He received his Ph.D. in Computer Science from RWTH Aachen University in 2015. He was a postdoctoral research associate at the University of Colorado Boulder from 2015 to 2018 and an assistant professor at the University of Dayton from 2018 to 2023. Dr. Chen is primarily interested in developing formal and machine learning methods for trustworthy AI and autonomous systems. He is also the primary developer of several formal verification tools such as Flow* and POLAR. His research has been, and is, funded by AFRL, NSF and NASA.

Speaker 2: Dr. Hongyou Fan

Title: *"Innovation and Invention in Engineering"*

Biography:

Hongyou Fan is an R&D Manager and Distinguished Member of Technical Staff at Sandia National Laboratories, and a National Lab Professor at the University of New Mexico. He earned his Ph.D. from the University of New Mexico and completed his postdoctoral training at Sandia before transitioning to a full-time staff position. His research focuses on interfacial colloid chemistry and engineering processes that advance nanoparticle aggregation, assembly, and synthesis, enabling transformative nanoscale materials and applications.

Dr. Fan is a Fellow of the Materials Research Society (MRS), ACS, APS, and RSC. He has received numerous honors, including the MRS Medal, MRS Mid-Career Researcher Award, MRS Fred Kavli Distinguished Lectureship in Nanoscience, Asian American Engineer of the Year, the Society of Asian Scientists and Engineers Career Achievement Award, and the Federal Laboratory Consortium (FLC) Outstanding Researcher Award. He also received an FLC Technology Transfer Award for co-founding LUNANO LLC to commercialize disinfectant solutions. His scientific and engineering innovations have been recognized with six R&D 100 Awards. In addition, his contributions to science and innovation have been recognized by the New Mexico State Legislature.

The MRS Medal is the Society's highest honor, recognizing significant advances expected to have a major impact on the progress of materials science. Dr. Fan's work has been described as "pioneering pressure-induced nanomaterial synthesis and characterization for materials exploration and discovery," highlighting his innovative approach to synthesizing nanomaterials using pressure rather than traditional chemical routes.