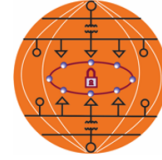




COLLEGE OF ENGINEERING
BRADLEY DEPARTMENT OF ELECTRICAL
AND COMPUTER ENGINEERING
VIRGINIA TECH.



PEC
Power and Energy Center

PEC Quarterly Newsletter • December 2024

power.ece.vt.edu

Director's Message

AT OUR LAST IAB meeting in April 2024, we explored ways to strengthen engagement with the IAB, including research and industry seminars, a quarterly newsletter, and an enhanced website. I'm thrilled to share that these initiatives are well underway! Our newly redone website is live at power.ece.vt.edu, and we're continuously updating it to make it a reflection of the host of research and education activities happening at the Center. Now, I am delighted to welcome you to the inaugural edition of the quarterly PEC Newsletter! In this issue, you will find highlights of the remarkable achievements of PEC students and faculty. Your ideas, feedback, and enthusiasm are vital to shaping the future of PEC, and I am eager to hear your thoughts. Two more updates: We are growing! ECE has **two open faculty positions** in power with an anticipated start date of fall 2025. And please save the date: **Our next IAB meeting is April 17, 2025**. An invitation will follow in January. Merry Christmas and Happy Holidays to all!

Ali Mehrizi-Sani
Professor and Director

PEC-IAB Engagement

- **Dominion Energy, AEP, and MEPPI** serve on the advisory board of a new DOE-funded project entitled HVDC-Learn. This project aims to create workforce training modules for HVDC technologies, with a focus on offshore wind. The VT PI is **Mehrizi-Sani** and prime is Iowa State U.
- PEC faculty **Liu** and **Mehrizi-Sani** visited **Mitsubishi Electric** in Yokohama, Japan, in July 2024 and delivered talks and discussed further engagement.
- **Dominion Energy** hosted the VASEM Summit (theme: Chartering the Future of the Sustainable Energy in Virginia) in Richmond in October 2024. **Dominion Energy, AEP, MPR,** and PEC faculty **Liu** were keynote speakers or panelists. Three PEC students (**Faizan Manzoor** [Ming Jin], **Jidapa Chalermkit** [Chen-Ching Liu], **Naser Sour**i [Ali Mehrizi-Sani]) presented posters.

Faculty Highlights

- **Prof. Chen-Ching Liu** received CIGRE Dale Douglass Award for Technical Achievement, Jul. 2024.
- **Prof. Saifur Rahman** delivered several keynote presentations at the WFEO event during COP29, including one at the Green Digital Action Plan event organized by the ITU. His talk, titled "IEEE Climate Change: Focusing on Technology for Climate Resilience," was especially impactful.
- **Prof. Lamine Mili** chaired the working group on power system dynamic state estimation at the IEEE PES General Meeting in July 2024 with an attendance of 30, mostly power industry. He also gave talks at Southeast University in Nanjing and Shenyang University in Shenyang, in June 2024.
- **Prof. Richard Zhang** made an invited presentation at US DOE's HVDC Circuit Breaker Workshop in May 2024; he also lectured at European PhD School in Italy, Hitachi Energy in Sweden, ABB in Italy, and Tsinghua U, Northern China Electric Power U, Huazhong U of Science & Technology, China.

Graduate Student Achievements

Bilgehan Sel (PhD, Ming Jin) received the Amazon Fellowship, ACL Travel Grant, and AAI Travel Grant in 2024 • **Running Yang** (PhD, Ming Jin) was awarded the CAIA/Sanghani Center Fellowship in January 2024 • **Lanxiao Huan** (PhD, Ming Jin) had Deloitte AI Fellowship renewed in 2024 • **Milad Beikbabaie** (PhD, Ali Mehrizi-Sani) became a CCI SWVA Cyber Innovation Scholar and won the IEEE 50th IECON Best Presentation Award • **Caroline Larson** (MSc, Ali Mehrizi-Sani) received the Bradley Masters Fellowship in 2024 • **Nitasha Sahani** (PhD, Chen-Ching Liu) earned the Paul E. Torgersen Research Excellence Award, 1st place in the PhD category in May 2024 • **Ehsan Fouladi** (PhD, Ali Mehrizi-Sani) received the Cyber Innovation Scholarship in April 2023 and 2024. • **Baza Somda** (PhD, Chen-Ching Liu) was awarded the CCI SWVA Cyber Innovation Scholarship in April 2024; he also received the Best Presentation Recognition in the technical session at IECON 2024.

Current Research Sponsors



New Projects Starting in the Past Two Quarters

Faculty	Grant Title	Sponsor	Start	Budget
Ali Mehrizi-Sani	Modules for Education and Workforce Training in HVDC Electric Transmission	DOE (via ISU)	7/1/2024	\$98,500
Rolando Burgos + Ali Mehrizi-Sani	Modeling and Simulation Efficiency Improvements in End-to-End Electrical System Models	Google	7/1/2024	\$591,905
Ali Mehrizi-Sani	Resilient Coordinated Control of Renewable-Based power Grid Under Cyberattacks (ROBOCYBER)	CCI SWVA	7/1/2024	\$37,500
Ming Jin	III: Medium: Towards Inclusive Recommendation Systems with Stakeholder Alignment	NSF	7/25/2024	\$1,159,223
Ali Mehrizi-Sani	Collaborative Research: RAPID: Wildfire Resilience On Hawaiian Islands: Risk-Aware EmergenCy Partial Microgrid Shutoff (OHANA)	NSF	9/1/2024	\$120,000
Ali Mehrizi-Sani	Developing Real Time Simulator Models of inverter-based resources (IBRs)	EPRI	9/2/2024	\$35,000
Paul K. Ampadu	DPUQC: Data Pipeline Uncertainty and Quality Control for Trustworthy Space Autonomy	Kryptowire LLC	9/6/2024	\$45,000
Ali Mehrizi-Sani and Jeff Reed	Secure Telecommunications ARchitecture for Trusted and Resilient Electric Communications (STAR TREC)	DOE (via EPRI)	10/7/2024	\$680,000
Lamine Mili	Macro-Resiliency of the North American Power Grid	DOE (via ANL)	12/5/2024	\$255,000