

Invitation

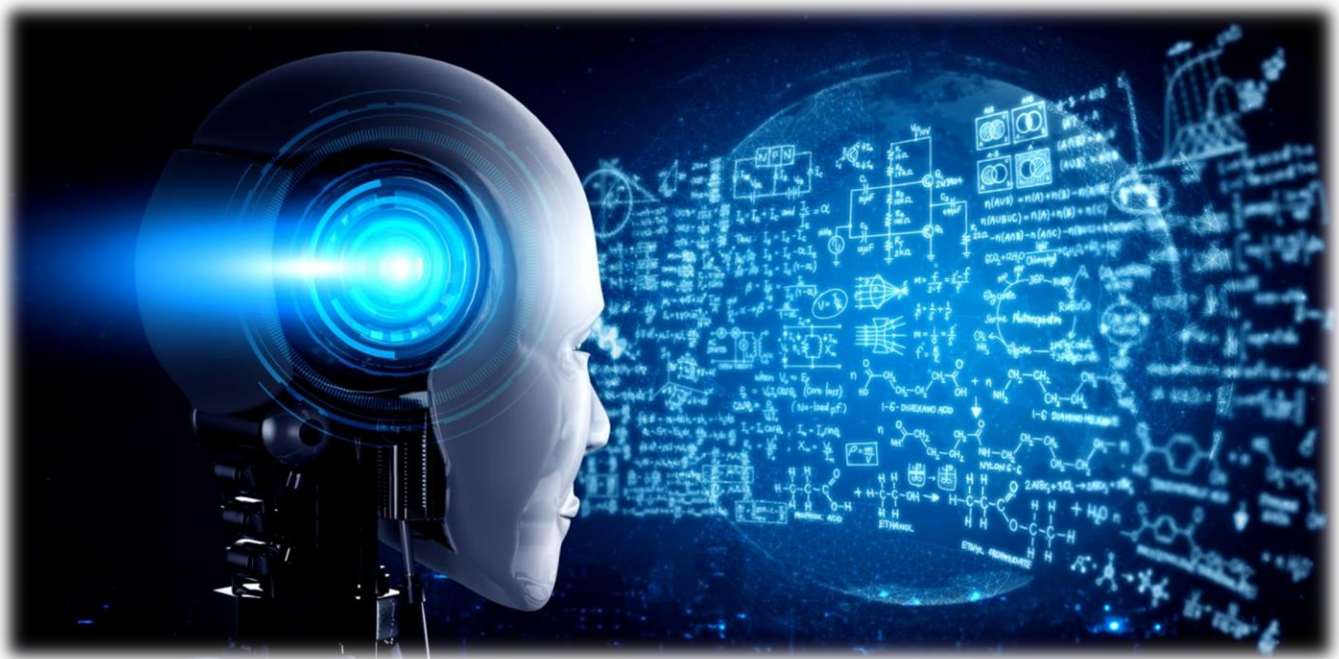
„FEIN e.V. Colloquium: Enabling Power Grid Resiliency with Physics-Aware Machine Learning“

For Members and Guests of FEIN e.V. – Cost-free, registration not required

Tuesday, 02.07.2024

14:30 - 16:00 CEST (presence only)

Room 00.23, E.ON ERC – Mathieustraße 10, 52074 Aachen



Moderator:

Prof. Antonello Monti, ACS, Fraunhofer FIT & FEIN

Presenter:

Prof. Dr. Anurag K. Srivastava, West Virginia University

FEIN e.V. – Förderer der Energie- und Informationstechnik für zukunftsfähige Netze Aachen e.V.

Chair: Univ.-Prof. Antonello Monti, Ph.D., Deputy Chairperson: Alexandra Bach, M.Sc.

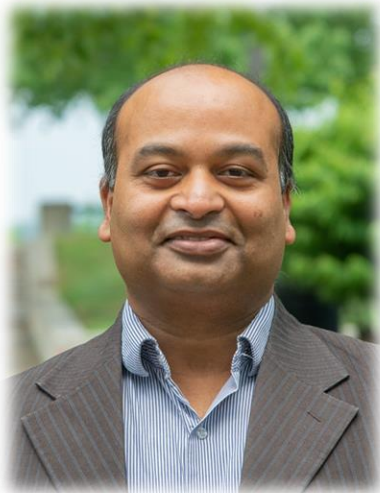
Treasurer: Wilfried Gier, Secretary: Philip Meyer

Headquarters: RWTH Aachen, E.ON Energy Research Center – Mathieustraße 10 – 52074 Aachen

Tel.: 0241-80-49703 – Fax: 0241-80-49709 – E-Mail: verein-fein@eonerc.rwth-aachen.de

The speaker will present his topic. Afterwards, Prof. Monti moderates a discussion with the speaker, who will be answering questions of the audience. The event is in English.

Talk: Enabling Power Grid Resiliency with Physics-Aware Machine Learning



Availability of data from massive sensors deployment in the cyber-physical electric grid enables new monitoring and control applications. Advancement in artificial intelligence provides an opportunity to develop data-driven technique utilizing these datasets. Some possible applications include, early alarm and diagnosis, predicative analysis, distributed and decentralized control. New applications need to consider physics-induced limits and high-performance requirement in a dynamic environment. Availability of additional sensor data brings its own challenges including data anomalies, real time processing, data fusion, data management and cyber-security management. Differentiating between data anomalies, cyber events and physical system events can be very challenging due to the similar signatures. This talk will focus on limits of AI for dynamic power grid applications, example of Physics-Aware Machine Learning (PAML) applications to enhance situational awareness, and associated challenges and opportunities for enabling power grid resiliency.

About the speaker, Prof. Dr. Anurag K. Srivastava:

Anurag K. Srivastava holds the Raymond J. Lane Professorship and serves as Chairperson of the Computer Science and Electrical Engineering Department at West Virginia University. Additionally, he is an adjunct professor at Washington State University and a senior scientist at the Pacific Northwest National Lab. He earned his Ph.D. in electrical engineering from the Illinois Institute of Technology in 2005. Dr. Srivastava's research focuses on data-driven algorithms and tools for cyber-resilient electric energy systems. His impactful research projects have resulted in the implementation of tools at utility control centers, supported by over \$60M in funding from entities such as the US Department of Energy, National Science Foundation, Siemens Corporate Research, Electric Power Research Institute, Schweitzer Engineering Lab, Power System Engineering Research Center, Office of Naval Research, and various National Labs. Dr. Srivastava has delivered 35+ keynotes, tutorials, and IEEE distinguished lectures in more than 18 countries. He is an IEEE Fellow, member of several CIGRE Working Groups (WGs), leading multiple IEEE technical WGs and the author of over 370 technical publications, 3 books, and 3 patents.

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