Curriculum Vitae Dr. Jochen Cremer

Personal Details

22/01/2025

Contact	j.l.cremer@tudelft.nl	LinkedIn: www.linkedin.com/in/jochen-cremer
Birth	28/07/1990 in Frankfurt am Main, Germany	Proficient languages: German and English
Address	Den Haag, Netherlands	

Qualifications

2017-2020	**PhD Applied Machine Learning for Energy Systems Management (distinction: top thesis out of 50)** *Imperial College London, UK*
2014-2016	**MSc Process Engineering (Grade: 1.5)** *RWTH Aachen University, Germany*
2011-2016	**BSc Electrical Engineering (Grade: 2.6, top 5% in 2012)** *RWTH Aachen University, Germany*
2010-2014	**BSc Mechanical Engineering (Grade: 1.9, top 5%)** *RWTH Aachen University, Germany*

only top <1% of students study simultaneous two degrees

Experience

Since 12/2020	**Associate Professor, Delft University of Technology (TU Delft), Netherlands** **Co-Director, Delft AI Lab for Electric Sustainable Energy** • Developing a new research line on Artificial Intelligence for Energy Systems • Leading a team of PhDs and Postdoctoral researchers
Since 09/2023	**Principal Scientist, Center for Energy, Austrian Institute of Technology** • Developing a team on computational methods for grid operation, planning, including techniques from Artificial Intelligence and Quantum Computing, responsible for a program with 6 PhDs + 1 Postdoc
Since 10/2021	**Member Board of Directors, Student Energy, NGO, Canada** • Overseeing operations and the strategy of this charity with 20 FTEs, 1M budget, 50k registered students and several programs for skill-building and development of youth, https://studentenergy.org/

2017-2021	**Research Associate & PhD Student, Imperial College London, UK**
	• Fully funded scholarship from RTE, the French TSO, and EPSRC, UK
	• Conference Chair of International Student Energy Summit 2019 - flagship event of Canadian charity Student Energy, London, UK www.StudentEnergySummit2019.com
	  ○ Globally largest student-run sustainable energy conference (**700 delegates from 100 countries)**
	  ○ Over **50 top-tier C-level energy leaders** spoke at our 4-days conference
	  ○ My role: led a 30-person team and 70 volunteers, project manager, **fundraised budget of £500k,** managed international advisory board, oversaw marketing, program, logistics, moderation, etc.

2016	**Graduate student researcher at Massachusetts Institute of Technology, USA** • 6 months master thesis on control systems in chemical engineering
2015-2016	**Student researcher at E.ON Energy Research Centre and RWTH Aachen University, Germany**
2013-2014	**Exchange student and researcher at Carnegie Mellon University, USA** • 9 months of studies and bachelor thesis "Demand side management of air separation plants"
	Industrial placements (3 months full-time each), Germany, China
2016	• Business development with CEO for medium-sized SME in energy industry, *Ene't, Hückelhoven, Germany*
2015	• Project engineering intern "Explore Together" program*, BASF, Shanghai, China*
2012	• Production engineering intern, *ThyssenKrupp Steel Europe, Germany*
2011	• Essential engineering intern, *INEOS, Cologne, Germany*

Awards and Recognitions (based on merit)

2024	**The Best Technical Brochure Award** IEEE PES Subcommittee AMPS **(IEEE PES-TR104** in the below list)
2024	**The Outstanding Reviewer IEEE Transactions on Sustainable Energy,** IEEE PES
2022	**The Best Paper** of IEEE Journal of Modern Power Systems and Clean Energy (**J14** in the below list)
2021	**The Eryl Cadwallader Davies Prize 2020-2021,** *Electrical Engineering, Imperial College* The top "Outstanding PhD Thesis" out of 50 PhD theses in the academic year.
2019	**The John Lever Memorial Award 2019** (£3k)**,** *Faculty of Engineering, Imperial College* "contributed significantly to teaching, outreach, public engagement, enterprise or student experience."
2018	**The John & Frances Jones Prize 2017-2018***, Imperial College London* • "the postgraduate student who 'made the best all-round contribution to College life, taking into account academic achievement, social and extra-curricular activities, for the academic year in question"

2017	**The Best Paper Award,** *6th International Conference on Smart Cities and Green ICT, Portugal*
2015	**The Research Ambassador Award** (£2k) for highly qualified master's students, *RWTH Aachen*
2012-2016	**The Germany Scholarship** (£11k) for academic achievements by *Evonik Foundation, Bilfinger Berger*
2013-2014	**The Dean's List Award** for academic achievements, *Carnegie Mellon University, USA*
2013-2014	**The International Study and Education Partnerships Grant** (worth £60k) to study in the USA by the *German Academic Exchange Service (DAAD)*

Journal Publications

J30 Geert Jan Meppelink, Ali Rajaei, **Jochen L. Cremer**, "A Hybrid Curriculum Learning and Tree Search Approach for Network Topology Control" *Electric Power System Research, 2025*

J29 **Jochen L. Cremer**, "Polynomial Line Outage Distribution Factors for Estimating Expected Congestion and Security", *IEEE Transactions on Power Systems, 2024*

J28 Demetris Chrysostomou, Jose Rueda Torres, **Jochen L. Cremer** "Tensor Convolution-Based Aggregated Flexibility Estimation in Active Distribution Systems", *IEEE Transactions on Smart Grid, 2024*

J27 Jingwei Dong, Haiwei Xie, Yucheng Liao, **Jochen Cremer**, and Peyman Mohajerin Esfahani, "Real-Time Ground Fault Detection for Inverter-Based Microgrid Systems", *IEEE Transactions on Control Systems, 2024*

J26 Haiwei Xie, **Jochen L. Cremer** "Game-Theoretic Learning for Power System Dynamic Ancillary Service Provisions", *IEEE Control Systems Letters, 2024*

J25 Bastien Giraud, Ali Rajaei, **Jochen L. Cremer** "Constraint-Driven Deep Learning for N-k Security Constrained Optimal Power Flow", *Electric Power System Research and 2024 IEEE Power System Computation Conference*

J24 Nikolina Covic, **Jochen L. Cremer**, Hrvoje Pandžić, "Learning a reward function for user-preferred appliance scheduling" *Electric Power System Research and 2024 IEEE Power System Computation Conference https://arxiv.org/pdf/2310.07389.pdf*

J23 Charles Renshaw-Whitman, Viktor Zobernig, **Jochen L. Cremer,** Laurens de Vries, "", *Electric Power System Research and 2024 IEEE Power System Computation Conference*

J22 Al-Amin Bugaje, **Jochen L. Cremer**, Goran Strbac "Generating Quality Datasets for Real-Time Security Assessment: Balancing Historically Relevant and Rare Feasible Operating Condition" *International Journal of Electrical Power & Energy Systems, 2023*

J21 B. Habib, E. Isufi, W. v. Breda, A. Jongepier and **Jochen L. Cremer,** "Deep Statistical Solver for Distribution System State Estimation, " *IEEE Transactions on Power Systems*, 2023, *doi: 10.1109/TPWRS.2023.3290358.*

J20 Dariush Wahdany, Carlo Schmitt, **Jochen L. Cremer**, "More than Accuracy: End-To-End Wind Power Forecasting that Optimises the Energy System", *Electric Power System Research, 2023*

J19 Nidarshan Veera Kumar, **Jochen L. Cremer**, Marjan Popov, "Dynamic Incremental Learning for real-time disturbance event classification", *International Journal of Electrical Power & Energy Systems, 2023,* (108988)

J18 Al-Amin Bugaje, **Jochen L. Cremer**, Goran Strbac, "Real-time Transmission Switching with Neural Networks" *IET Generation, Transmission & Distribution, 2022*

J17 Al-Amin Bugaje, **Jochen L. Cremer**, Goran Strbac, "Split-based Sequential Sampling for Realtime Security Assessment", *International Journal of Electrical Power & Energy Systems, 2022*

J16 Federica Bellizio, **Jochen L. Cremer**, Goran Strbac, "Transient Stable Corrective Control Using Neural Lyapunov Learning", *IEEE Transactions of Power Systems, 2022*

J15 Antoine Marot, Benjamin Donnot, Karim Chaouache, Adrian Kelly, Qiuhua Huang, Ramij-Raja Hossain, and **Jochen L. Cremer.** "Learning to run a power network with trust." arXiv preprint arXiv:2110.12908. *Electric Power Systems Research, 2022*

J14 Antoine Marot, Adrian Kelly, Matija Naglic, Vincent Barbesant, **Jochen Cremer,** Alexandru Stefanov and Jan Viebahn, "Perspectives on Future Power System Control Centers for Energy Transition", *IEEE Journal of Modern Power Systems and Clean Energy, 2022*

J13 Federica Bellizio, Wangkun Zu**,** Dawei Qiu, Yujian Ye**,** Dimitrios Papadaskapoulos**, Jochen L. Cremer**, Fei Teng, Goran Strbac, "Transition to Digitalized Paradigms for Security Control and Decentralized Electricity Market", *IEEE Proceedings, Special Issue "The Evolution of Smart Grids", 2022*

J12 Federica Bellizio, Al-Amin B. Bugaje, **Jochen L. Cremer,** Goran Strbac, "Verifying Machine Learning Conclusions for Securing Low Inertia Systems", *Sustainable Energy, Grids and Networks, 2022*

J11 Felix Rafael Segundo Sevilla, Yanli Liu, Emilio Barocio, Petr Korba, Manuel Andrade, Federica Bellizio, Jorrit Bos, Balarko Chaudhuri, Hector Chavez, **Jochen Cremer,** Robert Eriksson, Camille Hamon, Miguel Herrera, Marnick Huijsman, Michael Ingram, Danny Klaar, Venkat Krishnan, Jorge Mola, Marcos Netto, Mario Paolone, Panagiotis Papadopoulos, Miguel Ramirez, Jose Rueda, Walter Sattinger, Vladimir Terzija, Simon Tindemans, Alberto Trigueros, Yajun Wang, Junbo Zhao. "State-of-the-art of data collection, analytics, and future needs of transmission utilities worldwide to account for the continuous growth of sensing data". *International Journal of Electrical Power & Energy Systems, 2021:* 107772.

J10 F. Bellizio, **J. L. Cremer**, G. Strbac, "Machine-learned security assessment for changing system topologies." *International Journal of Electrical Power & Energy Systems* 134. 2022: 107380.

J9 F. Bellizio, **J. L. Cremer,** M. Sun, G. Strbac, "A causality based feature selection approach for data-driven dynamic security assessment." *Electric Power Systems Research* 201. 2021: 107537.

J8 A. Bugaje**, J. L. Cremer**, M. Sun, G. Strbac, "Selecting decision trees for power system security assessment", *Energy and AI*, 2021: 100110.

J7 T. Zhang, M. Sun**, J. L. Cremer**, N. Zhang, G. Strbac, C. Kang, "A Confidence-Aware Machine-Learned Framework for Dynamic Security Assessment", *IEEE Transactions on Power Systems,* 2021

J6 **J. L. Cremer**, G. Strbac, "A Machine-learning based Probabilistic Perspective on Dynamic Security Assessment" *International Journal of Electrical Power & Energy System, 2020*

J5 **J. L. Cremer**, I. Konstantelos, G. Strbac, "From Optimization-based Machine Learning to Interpretable Security Rules for Operation", *IEEE Transactions on Power Systems,* 2019

J4 M. Pau, **J. L. Cremer**, F. Ponci, A. Monti, "Day-Ahead Scheduling of Electric Heat Pumps for Peak Shaving in Distribution Grids". *In: Smart Cities, Green Technologies, and Intelligent Transport Systems. Communications in Computer and Information Science, Springer Journal,* 2018

J3 **J. L. Cremer**, I. Konstantelos, S. H. Tindemans, G. Strbac, "Data-driven Power System Operation: Exploring the Balance between Cost and Risk", *IEEE Transactions on Power Systems,* 2018

J2 M. Sun**, J. L. Cremer**, G. Strbac, "A novel data-driven scenario generation framework for transmission expansion planning with high renewable energy penetration", *Applied Energy,* 2018

J1 Q. Zhang, **J. L. Cremer**, I. E. Grossmann, A. Sundaramoorthy, J. M. Pinto, "Risk-based integrated production scheduling and electricity procurement for continuous power-intensive processes", in *Computers & Chemical Engineering,* 2015

Conference Publications

C13 Runyao Yu, Jiaqi Wang, Yongsheng Han, Chi Zhang, Teddy Szemberg O'Connor, **Jochen L. Cremer**, "Few-Shot Transfer Learning for Battery Cycle Life", *IEEE ISGT Europe 2024*

C12 **J. L. Cremer,** A. Kelly, R. Jorge Bessa, M. Subasic, P. Papadopoulos, S. Young, A. Sagar, A. Marot, "A Pioneering Roadmap for ML-Driven Algorithmic Advancements in Electrical Networks", *IEEE ISGT Europe 2024*

C11 F. R. Segundo Sevilla, Y. Liu, E. Barocio, P. Korba, A. Zamora, D. Dotta, F. Bellizio, H. Chavez, H. Jóhannsson, J. Cepeda, **J. Cremer,** J. Zhao, M. Arrieta, M. Paolone, M. Ramirez, P. Papadopoulos, and Y. Susuki, "Spatio-temporal Data-Driven and Machine Learning based Applications for Transmission Systems" *IEEE PES General Meeting 2024*

C10 A. Neagu, D. Chakravorty, **J. L. Cremer**, "Automatic Detection of Subsynchronous Oscillations" *CIGRE Annual meeting 2024*

C9 Demetris Chrysostomou, Jose Rueda Torres, **Jochen L. Cremer** "Operational Flexibility for Active Distribution Networks with low observability"**,** *IEEE Powertech 2023, Belgrade, Serbia*

C8 Rushil Vohra, Ali Rajaei, **Jochen L. Cremer** "End-to-End Learning with Multiple Modalities for System-Optimised Renewables Nowcasting", *IEEE Powertech 2023, Belgrade, Serbia*

C7 Jasper van Tilburg, Luciano Cavalcante Siebert, **Jochen L. Cremer,** "MARL-iDR: Multi-Agent Reinforcement Learning for Incentive-based Residential Demand Response" *IEEE Powertech 2023, Belgrade, Serbia*

C6 Haiwei Xie, Federica Bellizio, **Jochen L. Cremer**, Goran Strbac, "Regularised Learning with Physical Equations for Uncertain Power System Dynamics", *IEEE Powertech 2023, Belgrade, Serbia*

C5 **J. L. Cremer**, I. Konstantelos, G. Strbac, „Optimized Operation Rules for Imbalanced Classes", *IEEE PES General Meeting of Power Systems, Atlanta, USA,* 08/2019

C4 **J. L. Cremer**, I. Konstantelos, S. H. Tindemans, G. Strbac, "Sample-Derived Disjunctive Rules for Secure Power System Operation", in *IEEE International Conference on Probabilistic Methods Applied to Power Systems, Boise, USA,* 06/2018

C3 M. Pau, **J. L. Cremer**, F. Ponci, A. Monti, "Impact of Customers Flexibility in Heat Pumps Scheduling for Demand Side Management", in *IEEE International Conference on Environment and Electrical Engineering, Italy,* 06/2017

C2 **J. L. Cremer**, M. Pau, F. Ponci, A. Monti, "Optimal scheduling of heat pumps for power peak shaving and customers thermal comfort", in *International Conference on Smart Cities and Green ICT Systems*, *Portugal,* 04/2017

C1 Q. Zhang, **J. L. Cremer**, I. E. Grossmann, A. Sundaramoorthy, J. M. Pinto. "Electric Energy Procurement for Large Industrial Consumers Under Uncertainty in Electricity Price and Product Demand", *AICHE, Annual Meeting, USA,* 11/2014

Book chapter

Ch4 Christoph Brosinsky, Mert Karacelebi, **Jochen Cremer**, "Purpose-driven Surrogate Models Using Machine Learning and Digital Twins: Monitoring and control for dynamic security." in *Monitoring & control of electrical power systems using machine learning techniques*, Elsevier, 2023

Technical reports

11/2024 CIGRE TB 946, "The impact of the growing use of machine learning/artificial intelligence in the operation and control of power networks from an operational perspective" by CIGRE WG C2.42

11/2022 IEEE PES-TR104, "Application of spatio-temporal data-driven and machine learning algorithms for security assessment taskforce", by IEEE AMPS taskforce on Application of Big Data Analytics on Transmission Systems for Dynamic Security Assessment, **prize for best technical brochure at IEEE PES**

07/2022 IEEE PES-TR100, "Present situation on data acquisition, handling, and analytics of operators of the transmission system in different countries and their future needs to cope with the continuous growth of data", by IEEE AMPS taskforce on Application of Big Data Analytics on Transmission Systems for Dynamic Security Assessment

04/2021 CIGRE TB 833 - Operating strategies and preparedness for system operational resilience by CIGRE WG C2.25

04/2021 **Jochen Cremer,** Federica Bellizio, Ioannis Konstantelos, Goran Strbac Pauline Gambier-Morel, Patrick Panciatici, "Data-Driven Security Rules for Realtime System Prediction and Control" Energy Futures Lab, Imperial College London, https://www.imperial.ac.uk/energy-futures-lab/reports/data-driven-security-rules-for-real-time-system-prediction-and-control/

Funding

01/2024 AI Testing and Experimentation Facility for the energy sector – bringing technology to the market AI-EFFECT (HORIZON-CL5-2024-D3-01-11) **(**CO-I 600k Euro **accepted)**

01/2024 Monitoring cable ageing and identifying faults with advanced sensing and AI-Assisted Solutions to improve reliability of high-power cable systems (MISSION, HORIZON-CL5-2024-D3-01) **(**CO-I 600k Euro **reserve list)**

09/2023 Public-private partnership allowance for R&D with Stedin (PI 500k Euro, **accepted)**

08/2023 EU H2020 Sustainable, secure and competitive energy supply (HORIZON-CL5-2022-D3-02) **(**CO-I 500k, **rejected)**

09/2022 NWO LTP Robust Programme, Lab Manager for Alliander ICAI AI for Energy Grids Lab (CO-I, 2.5M Euro, **accepted**)

05/2022 EU H2020 FLEX4VALUE (Co-I, 350k Euro, **rejected**)

04/2022 AIT research programme for 6 PhDs (PI, 300k Euro +1M Euro indirect funds at AIT, **accepted**)

04/2022 NWO Veni Talent Program, personal grant for top 5-10% (PI, 280k Euro, **accepted**)

12/2021 EU H2020 HVDC HIGHWAY (CO-I, 200k Euro, **rejected**)

01/2021 Delft AI Lab programme, Delft AI Energy Lab (PI for 1M Euro, **accepted**)

08/2020 UKRI Futures Leaders (PI for personal grant 1.2M Euro, **rejected in interview stage**)

Invited keynotes and panel talks at scientific events

06/2025 **Tutorial** at ACM E-Energy 2025*, Rotterdam, Netherlands*

05/2025 **Speaker** at DTU Summer School**,** *DTU, Copenhagen, Denmark*

01/2025 **1-day course** on "AI in Power System Reliability Monitoring" at Smart and Green Energy Systems and Business Models hosted by *Tallinn University, Estonia, https://www.sustainalab.nl/event/grid-congestion-reshaping-future-energy-systems/*

12/2024 **Speaker** "Grid congestion: Reshaping Future Energy Systems", *Sustainalab Universiteit van Amsterdam, The Netherlands*

11/2024 **Tutorial of** IEEE CIGRE C2.42, AI-day for grid operations, **Paris, France**

11/2024 **Speaker** at Energietage, *Vienna, Austria*

10/2024 **Tutorial,** IEEE PES & Power Africa Conference, *Johannesburg, South Africa*

10/2024 **Panel speaker** "ML/AI applications in power systems: Drivers and barriers" *IEEE ISGT Europe, Dubrovnik, Croatia*

09/2024 **Speaker** "AI for NetZero" webinar series, https://www.youtube.com/watch?v=xpwHfjdZfgk

09/2024 **Speaker** at summer school „Inverter-Based Power Systems", *Imperial College London, UK*

07/2024 **Panellist** Dynamic Modeling of Multi-Energy Systems, *IEEE PES General Meeting, Seattle, USA*

07/2024 **Panellist** Convergence of AI- and Physics based Approaches in Power System Analysis, Optimization, and Control, *IEEE PES General Meeting, Seattle, USA*

06/2024 **Invited speaker** "Reinforcement Learning for Energy Community Management" in special session RL for energy networks" at the workshop on Reinforcement Learning for Stochastic Networks (RL4SN), *Toulouse, France*

05/2024 **Invited speaker** Webinar at IEEE PES Chapter Spain, Women in Power, Universitat Politècnica de Catalunya, *Barcelona, Spain*

05/2024 **Invited speaker in technical session** "Advancing Power System Reliability with System-based Deep Learning" , Electrimacs conference, *Castellon, Spain*

05/2024 **Invited speaker,** Symposium "Rise of AI | Opportunity or threat?", Dutchpower, *Amsterdam, Netherlands*

03/2024 **EPSRC Supergen Energy networks Hub Risk and Resilience Day** "Constraint-Driven Deep Learning for N-k Security Constrained Optimal Power Flow", *Newcastle University, UK*

02/2024 **3rd Champery Power Conference** "Weakly-supervised Graph Neural Networks for Distribution System State Estimation", *Champery, Switzerland*

11/2023 **Keynote speaker**, 33rd Workshop Computational Intelligence, *HTW Berlin, Germany*

11/2023 **Keynote speaker** "AI-based Monitoring for S13ustainable Energy Systems", Stichting Pipeliner - Symposium '23**,** *Gemeente Rotterdam, Netherlands*

08/2023 **Speaker** "Weakly supervised learning for power grid state estimation." in session "Physics-based and data-driven modelling for digital twin." 10th international conference on industrial and applied mathematics, *Tokyo, Japan*

07/2023 **Panellist** "AI to predict power blackouts" in panel session "Application of Big Data and AI/ML in monitoring, operations, planning and protection", *IEEE PES General Meeting, Orlando, USA*

07/2023 **Panellist** "Graph Neural Networks for Distribution State Estimation" in panel session "Machine Learning and Modern Heuristic Optimization for Planning and Operation of Active Distribution Networks", *IEEE PES General Meeting, Orlando, USA*

06/2023 **Panellist,** Panel Young Professionals Panel Session on Future Power System Workforce, *IEEE PES PowerTech, Belgrade, Serbia*

06/2023 **Panellist,** Panel Contemporary and emergent methods for planning and analysis of distribution networks, title "Graph Neural Networks for Distribution State Estimation", *IEEE PES PowerTech, Belgrade, Serbia*

03/2023 **Round table discussion** "AI and ML for smart grids", Smart Grid Tech Week, invited by Utilidata, Smart Grid Forums, *Amsterdam, Netherlands*

02/2023 **Invited speaker** "AI for Energy – Exploring activities and opportunities in the Netherlands" at *a DOE - organized workshop on AI for Energy Innovation held in conjunction with 37th AAAI Conference on Artificial Intelligence, Washington DC, US*

10/2022 **Plenary panellist in supersession on Stability, Dynamics, and Control of Emerging Renewable-Rich Power Systems,** *IEEE ISGT Europe, Novi Sad Serbia*

10/2022 **Plenary panellist in supersession on AI for active power networks,** *IEEE ISGT Europe, Novi Sad Serbia*

09/2022 **Keynote address** "AI for Distributed Energy Systems", *Intelligent Systems Conference IntelliSys 2022, Amsterdam, Netherlands https://www.youtube.com/watch?v=80x3ebPWiLA* **100 attendees**

07/2022 **Plenary panellist,** "Machine Learning for Security Assessments in Low Inertia Grids", *supersession on AI applications in Power Grid, IEEE PES General Meeting*, *Denver USA*

07/2022 **Panellist** "Multi-Agent Reinforcement Learning for Incentivized Flexibility from Residents", in session *Advanced Applications of Modern Optimization and Artificial Intelligence Methods on Active Distribution Networks. IEEE PES General Meeting*, *Denver USA*

07/2022 **Panellist** "Learning to run a power network with trust", in session *Enhancing power system operation through online analytics, IEEE PES General Meeting*, *Denver USA*

05/2022 **Panellist** "On Dynamics and Artificial Intelligence for Power Systems", in session *Synchrophasor and Monitoring data handling: A perspective of ongoing TSOs approach, IEEE International Conference on Smart Grid Synchronized Measurements and Analytics, Split Croatia*

05/2022 **Panellist** "Artificial Intelligence Methods for DSA*" in session PMU- and AI-based analysis for a resilient operation of future power systems, IEEE International Conference on Smart Grid Synchronized Measurements and Analytics, Split Croatia*

10/2021 **Lightning talk,** World Summit AI, *Amsterdam, NL* https://youtu.be/rkpWCiYNJcs **50 attendees**

09/2021 **Keynote address** "AI: Real-Time Operations or Full Automation?", *ISA Knowledge Days, Virtually, Columbia* **300 attendees**

08/2021 **Panellist** "Operational Resilience", CIGRE Annual Meeting, Online, Paris

12/2019 **Presentation, IEEE Big Data & Analytics Webinar** https://www.youtube.com/watch?v=X8VBSoOE5is&t=1

11/2019 **Panellist**, *IEEE Sustainable Power and Energy Conference*, Beijing, China, **100 attendees**

10/2019 **Keynote address "**A Student Perspective on Climate Change", *AAPG Energy Transition Forum, Edinburgh*, UK **300 attendees** https://www.youtube.com/watch?v=HGay34cgdAo&t=1s

08/2019 **Panellist**, "Data Analytic Tools for Security Assessment of Bulk Power Systems", *IEEE PES General meeting, Atlanta USA*

Invited seminar talks

11/2024 Graph & Data Seminar, *Delft University of Technology, The Netherlands*

10/2024 Swiss Federal Laboratories for Materials Science and Technology, Urban Energy System, *Online, Zurich, Switzerland*

04/2024 Zagreb University of Technology "Power System State Estimation with Deep Learning", *Zagreb, Croatia*

04/2024 Hitachi Energy Corporate Research, *Zurich, Switzerland*

04/2024 EU Joint Research Centre, *Ispra, Italy*

04/2024 ie3 Seminar, Dortmund University of Technology, *Dortmund, Germany*

08/2023 Invited visit University of Kyoto, *Kyoto, Japan*

11/2022 The Polytechnic University of Madrid, *Madrid, Spain*

07/2022 Hitachi Energy Corporate Research, *Mannheim, Germany*

03/2022 Lunch Lecture, TU Delft Energy Club, *Delft, Netherlands*

03/2022 The e-refinery annual workshop, TU Delft, *Netherlands*

12/2021 UK Digital Catapult: Accelerating UK-NL AI Collaboration towards Net Zero*, London, UK*

10/2021 Eindhoven University, Cyber-Physical Systems Center Eindhoven, *Eindhoven, Netherlands*,

09/2021 RTE, French TSO, R&D Department, *Paris, France*

05/2021 Groningen University, "Smart Grids Symposium", Student Energy Chapter, *Groningen, Netherlands*

05/2021 AI for Energy and Sustainability Think Tank, TU Delft, *Delft, Netherlands,*

04/2021 „AI for the energy system", Karlsruhe Institute of Technology, Institute of Applied Informatics, *Karlsruhe, Germany*

02/2021 "Supervised Learning to Prevent Blackouts in Power Systems", ETH Zurich, Chair of Intelligent Maintenance Systems https://www.youtube.com/watch?v=mB5Adxw1idc

11/2020 AI Initiative Talk, TU Delft, *Delft, Netherlands*

12/2019 IEEE Big Data & Analytics Webinar https://www.youtube.com/watch?v=X8VBSoOE5is&t=1

10/2019 Energy Futures Lab Seminar series, Imperial College London, *London, UK*

Other publicity

05/2024 Article "KI In Energietechnik", Österreichischer Verband für Elektrotechnik e+i Magazin

11/2023 Blog post "Roadmap of Innovating with AI for Distribution Grids", https://www.linkedin.com/pulse/roadmap-innovating-ai-distribution-grids-jochen-cremer-zugme

10/2023 Article, "Nvidia: AI solves problems of overcrowded power grid", Telegraaf NL https://www.telegraaf.nl/financieel/815514148/nvidia-ai-lost-problemen-van-overvol-stroomnet-op

10/2022 Blog post "Discussing the opportunities and challenges for AI-based algorithms in distribution grids" https://www.linkedin.com/pulse/discussing-opportunities-challenges-ai-based-grids-jochen-cremer/

04/2022 Article "In the future, power disruptions may follow in quick succession", https://www.delta.tudelft.nl/article/future-power-disruptions-may-follow-quick-succession

11/2021	NLAIC video contribution to "AI for Energy Transition" https://www.youtube.com/watch?v=bZaFpHjH1VQ
10/2019	Blog post "Machine-Learning, distributed data and the grid", Energy Futures Lab, London https://energyfutureslab.blog/2019/10/17/machine-learning-distributed-data-and-the-grid/

Leading and organising technical discussions

09/2024	Co-Organiser 14. (Hybrid) Symposium Communications for Energy System (COMFOREN), Vienna
05/2024	Organiser workshop for industry, "AI use cases for distribution networks", Alliander
03/2024	Moderator Symposium "Wide area monitoring, and data-driven aspects for the future power system" Inauguration of Prof. Marjan Popov, Delft
10/2023	Moderator panel "Roadmap of Innovating with AI for Distribution Grids", IEEE PES ISGT Europe 2023, Grenoble France
09/2023	Chair and organiser 7th International DynPower Workshop, TU Delft
062023	Co-Chair technical session "Monitoring and control", IEEE PES PowerTech Belgrade
03/2023	Organiser workshop "GNNs and RL for Energy System Planning and Operation", Austrian Institute of Technology, Vienna, Austria
10/2022	Panel chair "Data analytics, machine learning, and artificial intelligence in smart grids", IEEE European Conference on Innovative Smart Grid Technologies, Novi Sad, Serbia
08/2022	Panel chair "Advanced Applications of Modern Optimization and Artificial Intelligence Methods on Active Distribution Networks", IEEE PES General Meeting, Denver, USA
08/2022	Panel chair "Data collection and future needs to account for the continuous growth of sensing data in control rooms", IEEE PES General Meeting, Denver, USA
Since 04/2021	Organizer, AI for E&S Think Tank Seminar Series, (bi-)weekly TU Delft, Rotterdam, Leiden University
10/2021	Panel moderator "Action-orientated innovations from the private sector" World Summit AI, *Amsterdam*
12/2019	Workshop, "Entrepreneurship, Climate Change, Impact", *University of Leeds, UK*,
07/2019	Chair and moderator of the 3-day conference, *International Student Energy Summit 2019*, London, UK 700 attendees

Education

From 2025	Lecturer in 4 ECTS course "Introduction to Machine Learning", BSc Electrical Engineering, (~80 students)
Since 2024	Profile coordinator "Digital Energy Technology", MSc Sustainable Energy Technologies
Since 2024	Responsible lecturer, course SET MSc "Machine Learning Workflows for Energy Systems" (~20 students)
2024	Professional training, 3-day workshop "AI for Electrical Systems" for industry Alliander & Stedin
2023	Organiser, "Learning to Run a Power Network Challenge Delft" https://codalab.lisn.upsaclay.fr/competitions/12420, National-wide PhD, Postdoc, and early-career training
2023	Organiser 3-day workshop "AI for Intelligent Energy Systems", TU Delft
Since 2023	Guest lecture in EE3065TU, Reliability of Sustainable Power Systems
Since 2022	Guest lecture "AI for Intelligent Electricity Systems" in SET3065 TU Delft
Since 2022	Coordinator and lecturer of EE 4C12 "Machine Learning for Electrical Engineering", EE MSc course, TU Delft (~100 students)
2022	Lecture "Machine Learning for Energy Systems" in professional 1-year course X!Lead, TU Delft
2021	Coordinator, developer, lecturer of EE 4720 "Machine Learning for Power System Applications", EE MSc course, TU Delft
2021	Tutor for Electronics Lab EPO1 "Booming Bass", TU Delft
2021	Developer and lecturer of a module for MOOC "Intelligent and Integrated Energy Systems", PowerWeb Institute, TU Delft
2018	Electronics Lab, Graduate Student Assistant, Imperial College London
2017	Mathematics 1-2, Graduate Student Assistant, Imperial College London

Professional certifications

11/2022	University Teaching Qualification: supervision, course development, teaching and assessment, TU Delft
2021	Personal Development Program, TU Delft

Working groups

Since 2024	Verein Deutscher Elektrotechnik (VDE), Energietechnische Gesellschaft, Gremien „KI in der Netzleittechnik"
Since 2022	IEEE PES WG, "Application of Big Data Analytic on Transmission System Dynamic Security Assessment", Pillar lead of a sub-group "Data-Driven methods for Low-Inertia Systems", coordinating a technical report
Since 2023	Linux Energy Foundation, working group on AI for Energy
Since 2022	CIGRE WG 2.42, "The impact of the growing use of ML/AI in operation and control of Power Networks from an Operational perspective", NL representative
Since 2021	NL AI Coalition WG Energy and Sustainability
2019-2022	IEEE PES taskforce, "Application of Big Data Analytic on Transmission System Dynamic Security Assessment", Active founding member, UK representative
2017-2021	CIGRE WG 2.25 "Operational Resilience", UK representative and task-leader

2019 Climate Entrepreneurs Club, I founded this new club in London to ideate solutions to the local effects of climate change. The club is still active www.climateentrepreneurs.uk and hosts skill development and brainstorming sessions.

2018 IEEE student branch, I build the team to organize seminars and industrial visits at Imperial College London

Editorial and reviewer service

2025 Technical program committee, 16th ACM International Conference on Future and Sustainable Energy Systems (ACM e-Energy), Rotterdam

2025 Guest editor for a special issue on "VSI:Stability Analysis of transmission system" *International Journal of Electrical Power Engineering*

2024 Technical program committee 12th DACH+ Energy Informatics Conference, Lugano, Switzerland

2024 Technical program committee 15th ACM International Conference on Future and Sustainable Energy Systems (ACM e-Energy), Singapore

2024 Guest editor for a special issue on "Big Data Analytics: Moving towards applications to maintain the secure operation of carbon-neutral power grids" *IEEE Open Access Journal of Power and Energy*, IF 2.8

2023 Guest editor for a special issue on "explainable AI for smart grid" for *IEEE Journal of Emerging and Selected Topics in Industrial Electronics*, IF 4.5

2022 Technical program committee IEEE ISGT Europe, Novi Sad, Serbia

2021 Guest editor for a special issue on "Applications of machine learning and statistical methods for dynamic security assessment on transmission systems", *Sustainable Energy, Grids and Networks,* IF 2.5

Since 2018 Reviewer of around 100+ IEEE Transactions on Power Systems, IEEE Transactions on Smart Grid, IEEE Transactions on Sustainable Energy, IEEE Transactions on Energy Markets, Policy, and Regulation, International Journal of Electrical Power & Energy Systems, Electrical Power Systems Research

Peer representation & community support

Since 2023 Faculty advisor to IEEE PES Student Branch Chapter Delft University of Technology

2018-2020 Elected department PhD representative of 250 PhD and 100 masters. Led a group of 6 reps, initiated the exchange and monthly seminars and improved the academic environment with the management of the department

2019 Established & chaired IEEE PES Student Branch at Imperial College London

Research projects

Since 2024 AI-EFFECT, HORIZON-CL5-2024-D3-01-11, AI Testing and Experimentation Facility for the energy sector – bringing technology to the market

Since 2023 Graph-based AI Monitoring Tools for Complex-Energy Systems, public-private partnership project, Topsector ICT

Since 2022 Austrian Institute of Technology, Principal Scientist Program, Principal Investigator

Since 2022 NWO LTP Robust Project "Trustworthy Artificial Intelligence" Co-Investigator TU Delft

Since 2022 NWO Veni Project "physics-informed AI to predict power blackouts", Principal Investigator

Since 2021 MEGAMIND: Measuring, Gathering, Mining and Integrating Data for Self-management in the Edge of the Electricity System, NWO Perspective Program, a supervisor from TU Delft

2017-2020 Industrial R&D project, RTE, French transmission system operator

2016 EU H2020 project FLEXMETER, work package "Energy management of heat pumps for the benefit of distribution system operators", at E.ON Energy Research Centre, Aachen

2015 Industrial project with BASF, "Design of micro chemical reactors considering energy and mass balances" at Process Systems Engineering Group

Postdoctoral researchers

Since 2024 Jochen Stiasny, "Learning Surrogate Models for Physical Systems"

PhD candidates as the main supervisor

Since 2025 Paul Bannmüller "Reinforcement Learning in Topology Reconfigurations", TU Delft

Since 2024 Betül Mamudi "Machine Learning for State Estimation", TU Delft, Alliander

Since 2024 Perine Cunat "AI for Modelling Heating and Electricity Networks", TU Delft, Austrian Institute of Technology

Since 2024 Luca Hofstadler "Quantum Computing for Transmission Systems", TU Delft, Austrian Institute of Technology

Since 2023 Runyao Yu "Machine Learning for Outliers in Grids Operations and Intraday Energy Markets', TU Delft, Austrian Institute of Technology

Since 2023 Olayiwola Arowolo "Neural Networks for Electromagnetic Transients", TU Delft

Since 2022 Basel Morsy "Reinforcement Learning for Topological Reconfigurations", TU Delft, Austrian Institute of Technology

Since 2022 Viktor Zobernig "Reinforcement Learning for Trading Strategies in Redispatch Markets", TU Delft, Austrian Institute of Technology

Since 2022 Haiwei Xie, "Control of Dynamic Virtual Power Plants", TU Delft

Since 2021 Demetris Chrysostomou, "Estimating Flexibility of Distribution Grids at TSO/DSO interface", TU Delft, MEGAMIND program

Since 2021 Ali Rajaei, "System-theoretic Machine Learning for Congestion Management" TU Delft, TU Delft AI Initiative

Since 2021 Mert Karacelebi, “Neural Networks for Dynamic Security Assessment” TU Delft, TU Delft AI Initiative

2019-2023 Al-Amin Bugaje, “Data Augmentation for Power System Security Assessment”, Imperial College London, now at Hitachi Energy, Canada

2018-2022 Federica Bellizio, “Topological Changes in Data-Driven Dynamic Security Assessment for Power System Control”, Imperial College London, now at Swiss Federal Laboratories for Materials Science and Technology

PhDs evaluated as external reviewer

2024 “Segmentation of the electricity network for smart grid management”, Noureddine Henka, Université Paris-Saclay, France

2024 "Essential Tools and Strategies for the Participation of Battery Energy Storage Systems in Ancillary Services." Javier Cardo, Universitat Jaume I de Castelló, Spain

2023 “Advanced methods for enhancing interpretability of AI tools with application to the energy sector”, Konstantinos Parginos, MINES Paris, France

MSc student supervisions

2024 “Algorithms for Distribution Grid Expansion”, Sven van der Voort, TU Delft, supervised in collaboration with Algorithmic group, Neil Yorke-Smith

2024 “Reinforcement Learning for Congestion Management”, Thomas Lautenbacher, TU Delft and TU Berlin

2024 “Incentive-Based Community Management with Network Constraints”, Michal Okon, TU Delft

2024 “Stable Diffusion for Energy-system Optimized Solar Nowcasting”, Oscar Lopez, TU Delft and Hitachi Energy

2024 “User-centric EV charging cycles to maximise battery lifetime”, Viviana Kleine, TU Delft and Porsche

2023 “Reinforcement Learning for Coordinating Energy communities”, Catarina Santos Neves, TU Delft in collaboration with Instituto Superior Técnico, Lisbon, Portugal

2023 “Market mechanisms for Frequency Service provided by Dynamic Virtual Power Plants”, Torben Zeller, TU Delft in collaboration with RWTH Aachen University

2023 “Quantum Computing for Power Systems” Hjalmar Lindstedt, TU Delft

2023 “Market Mechanism Design for Virtual Inertia”, Johnny Zheng, TU Delft

2023 “Reinforcement learning for transmission network topology control” Geert-Jan Meppelink, TU Delft, in collaboration with NTNU, Trondheim, Norway

2023 “Neural Ordinary Differential Equations for Frequency Dynamics” Nila Krishnakumar, TU Delft

2023 “End-to-end learning for N-k SC-OPF” Bastien Giraud, TU Delft, in collaboration with NTNU, Trondheim, Norway

2023 “Data-Driven Adaptive Dynamic Equivalents of Active Distribution and Transmission Networks” Alex Neagu, TU Delft

2022 “Multi-Modal End-to-End Learning for Real-Time Monitoring of Sustainable Energy Systems”, Rushil Vohra, TU Delft

2022 “Meter placement for state estimation in distribution networks”, Sattama Datta, TU Delft, thesis with Alliander, DSO Netherlands

2022 “Deep Statistical Solver for Distribution System State Estimation” Benjamin Habib, supervised with Multimedia Computing Group TU Delft thesis with Stedin, DSO Netherlands

2021 “Multi-agent reinforcement learning for incentive-based residential demand response”, Jasper van Tilburg, supervised in collaboration with Interactive Intelligence Group TU Delft, now Ciphix, Netherlands, **ranked as top student-led paper at IEEE PowerTech Belgrade 2023 conference** *(prize not awarded as formal requirements not met).*

2021 “Detection and Classification of Faults in Small-Scale Residential PV Systems with a Synthetic PV Training Database” Dion de Mooy, supervised in collaboration with PVMD group, TU Delft, now Zonnepark Services, Netherlands,

2020 “Application of Machine Learning for assessing grid security performance”, Haiwei Xie, Imperial College London, **awarded best MSc thesis**, **now PhD student TU Delft**

2020 “Application of Machine Learning for assessing grid security performance”, Ailing Guo, Imperial College London, now State Grid, China

2019 “Security Analysis of Electrical grids using Machine Learning”, Al-Amin Bugaje, Imperial College London, now PhD student Imperial College London

Academic visitors

2024 Thomas Lautenbacher, TU Berlin, Erasmus+ scholarship

2023 Torben Zeller, Erasmus+ scholarship, graduate researcher, RWTH Aachen University

2022 Nikolina Covic, PhD researcher University of Zagreb, Croatia

2021 Dariush Wahdany, graduate researcher, RWTH Aachen, IDEA league fellowship, now PhD at Fraunhofer Institute, Berlin