Yaze Li

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Education

•University of Arkansas *August 2023*
PhD, Electrical Engineering Fayetteville, AR

•Tsinghua University *July 2017*
BS, Electrical, Electronics and Communication Engineering Beijing, China

Skills

- **Programming**: Python, MATLAB, R, C, MySQL
- **ML Module**: Tensorflow, PyTorch, NumPy, Pandas, Stable Baselines
- **Engineering Application**: Simulink, LaTeX, AMPL, Jupyter

Experience

•University of Arkansas *August 2017 - July 2023*
Graduate Assistant for Cybersecurity Center for Secure Evolvable Energy Delivery Systems (SEEDS) Fayetteville, AR

– Proposed a Coordinate Descent (CD) based dynamic programming (DP) approach for optimum designs of battery-assisted PV systems considering the aging effects of solar panels and batteries, saving the total cost by 29.3% over a ten-year period using MATLAB. [Journal][GitHub]
– Developed a on-line scheduling algorithm for battery-assisted PV systems by reinforcement learning with Deep Deterministic Policy Gradient (DDPG), saving 3.29% annual cost using MATLAB and Stable Baselines in Python. [Journal][GitHub]
– Proposed a DDPG algorithm for realtime optimal power flow (RT-OPF) scheduling in a microgrid equipped with energy storage and power generations from both conventional and wind sources, using Matpower in MATLAB and Stable Baselines. [GitHub]
– Developed a new framework and algorithm of truck-based mobile energy couriers (MEC) scheduling in a distribution network with renewable energy sources, using Pandapower and Stable Baselines in Python. [GitHub]

•University of Arkansas *August 2019 - July 2023*
Graduate Assistant for Center for Infrastructure Trustworthiness in Energy Systems (CITES) Fayetteville, AR

– Proposed a dynamic watermarking based active low latency attack detection algorithm for grid connected PV systems, achieve a detection delay of 50 ms with probability of false alarm (PFA) below 5% in MATLAB. [Journal][GitHub]
– A Deep Q-Network (DQN) based deep reinforcement learning algorithm has been proposed for the low latency detection of cyberattacks, such as FDI and DoS attacks in smart grids, using Power system Toolbox in MATLAB and Stable Baselines. [Journal][GitHub]

•V3 Technology Ltd. *June 2016 - August 2016*
Summer Intern, Hardware Engineer Beijing, China

– Developed a real-time communication platform on the basis of Zynq Soc Embeded FPGA.

Selected Publications [google scholar link]

•Y. Li and J. Wu, "Optimum integration of solar energy with battery energy storage systems," IEEE Transactions on Engineering Management, 2020. [Journal][GitHub]

•Y. Li and J. Wu, "Low latency cyberattack detection in smart grids with deep reinforcement learning," International Journal of Electrical Power & Energy Systems, vol. 142, p. 108265, 2022. [Journal][GitHub]

•Y. Li, J. Wu, and Y. Pan, "Deep reinforcement learning for online scheduling of photovoltaic systems with battery energy storage systems," Intelligent and Converged Networks, Tsinghua University Press, 2024. [Journal][GitHub]

•Y. Li, N. Lin, J. Wu, Y. Pan, and Y. Zhao, "Low Latency Attack Detection with Dynamic Watermarking for Grid-Connected Photovoltaic Systems," Journal of Emerging and Selected Topics in Industrial Electronics, 2023. [Journal][GitHub]

Research interest

Statistical Inference, Detection and Estimation, Deep Reinforcement Learning

Visa & employment authorization

Status: Open work permit. No sponsorship is required.