AVINASH MADAVAN

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EDUCATION

University of Illinois at Urbana-Champaign 2016 - Present
M.S. in Electrical Engineering, 2018; Ph.D., 2021 (Expected)
Qualified for Ph.D. candidacy in May, 2018

University of California at San Diego 2012 - 2016
BS in Mechanical Engineering, Minor in Mathematics
Honors: Graduated *cum laude*, Phi Beta Kappa

WORK EXPERIENCE

University of Illinois at Urbana-Champaign August 2016 - Present
Electrical and Computer Engineering, Power and Energy Group *Graduate Research Assistant*

- Research focused on online optimization for risk-sensitive convex optimization.
- Derived convergence for a risk-sensitive primal-dual subgradient method with sampling complexity.
- Implemented critical region exploration for solving decomposed linear programs.
- Researched solution techniques for chance-constrained and robust optimization.
- Analyzed augmented-Lagrangian accelerated-gradient methods for large-scale linear programming.

NASA Ames Research Center Summer 2014, Summer 2015
Intelligent Systems Division *Intern*

- Compared several optimal control algorithms for automatic throttle control of commercial aircraft.
- Implemented model predictive controller on the B757-replica Advanced Concepts Simulator (ACS).
- Worked on a team to develop technology to improve pilot awareness and commercial aviation safety via future state prediction and alerts, and performed verification and validation studies in the ACS.
- Provided simulation support during technology evaluation by commercial pilots.
- Developed MATLAB scripts to compile and analyze simulation results.

PUBLICATIONS

- A. N. Madavan and S. Bose, "Subgradient Methods for Risk-Sensitive Optimization," *arXiv e-prints*, p. arXiv:1908.01086, Aug 2019.
- A. N. Madavan, S. Bose, and E. Bitar, "The marginal value of networked energy storage," *IEEE Transactions on Power Systems*, 2019, (submitted).
- A. N. Madavan, Y. Guo, S. Bose, and L. Tong, "Risk-sensitive security-constrained economic dispatch via critical region exploration," *Power and Energy Society General Meeting*, 2019.
- K. Shish, J. Kaneshige, D. Acosta, S. Schuet, T. Lombaerts, L. Martin, and A. N. Madavan, "Aircraft mode and energy-state prediction, assessment, and alerting," *Journal of Guidance, Control, and Dynamics*, vol. 40, no. 4, pp. 804–816, 2016.

HONORS AND ACHIEVEMENTS

UIUC IEEE PES/PELS/IAS Chapter Secretary May 2018-Present
IEEE PECI Conference Committee Member December 2017-Present
Best paper award at AIAA Infotech@Aerospace Conference 2015
NASA Group Achievement Award 2015

PROGRAMMING SKILLS

Proficient Python, MATLAB, C/C++, Java
Exposure LaTeX, SQL, JavaSript, Angular, Node.js, PowerWorld