Jonathan Spencer

j.spencer@princeton.edu, 303.525.5598

I'm a fifth year Ph.D. student at Princeton studying imitation learning and reinforcement learning with specific interests in modeling and prediction for autonomous driving applications. I love understanding and improving autonomous systems in theory and in practice. I have broad interests in all aspects of sensing, signal processing, modeling and control, and I look forward to a future full of helpful robots.

Education

Ph.D. in Electrical Engineering – Princeton University – Fall 2016 to Present

Inverse Reinforcement Learning, Reinforcement Learning, Probabilistic Modeling

Publications:

- **Spencer,** Choudhury, Barnes, Schmittle, Chiang, Ramadge, Srinivasa. "Learning from Interventions: Human-robot interaction as both explicit and implicit feedback." RSS '20
- Lan, **Spencer,** Chen, Brinton, Chiang. "A Probabilistic Model for MOOC Discussion Forums." ECML-PKDD '18
- Bridges, Jared, Weissman, Garay, **Spencer,** Brinton. "Course Recommendation as Graphical Analysis." CISS '18
- Shridharan, Willingham, **Spencer,** Yuan, Brinton, "Predictive Learning Analytics for Video-Watching Behavior in MOOCs." CISS '18

M.S. in Electrical Engineering – Brigham Young University – 2014 to 2015

Thesis: *A Compact Phased Array Radar for UAS Sense and Avoid*

Publications:

- Sahawneh, Wikle, Roberts, **Spencer,** McClain, Warnick, Beard. "A Ground-Based Sense-and-Avoid System for Small Unmanned Aircraft." JAIS 2018
- Sahawneh, **Spencer,** Beard, Warnick. "Minimum required sensing range for UAS sense and avoid systems." AIAA Infotech 2016
- Sahawneh, Mackie, **Spencer,** Beard, Warnick. "Airborne radar-based collision detection and risk estimation for small unmanned aircraft systems." JAIS 2015
- Mackie, **Spencer,** Warnick. "Compact FMCW radar for a UAS Sense and Avoid System." APSURSI 2014

B.S. in Electrical Engineering – Brigham Young University – *Magna Cum Laude* – 2009 to 2014

Experience

Work:

Motion Planning Intern – Developed novel simulator-based imitation learning methods – Aurora – 2020
Technical Lead – Signal processing for pulse-oximetry – Rocojo (startup) – 2016
Technical Lead – Hardware/software development for communications devices – Wavio (startup) – 2015
Analog Design Intern – Amplifier and ADC design using Cadence – On Semiconductor – 2015

Teaching Assistant:

Safety Critical Robotics (Princeton – ELE 539)
Networks/Optimization (Princeton – ELE 381)
VLSI Comm. Circuits Lab TA (BYU – ECEn 549)
Signals and Systems Lab TA (BYU – ECEn 380)
Analog Circuits Lab TA (BYU – ECEn 212)

Undergraduate Thesis Advising/Mentoring:

Rebekah Sichel – "Alternative Methods for Avalanche Search and Rescue" – 2017
Oliver Matthews – "Extending Classical Deep Reinforcement Learning Techniques for use in Multi-Agent Systems" – 2020

Volunteer Work:

Engineering Tutor – 5+ hrs per week in undergraduate EE topics at BYU for 3 years, 2013-2015
Resident Graduate Student – Mentor and build community for incoming Princeton students, 2020
English Teacher – ESL for 600+ Elementary school kids in rural Hunan, China for 6 months, 2016
Missionary – Faith, family counseling, and addiction recovery in Argentina for 24 months, 2010-2012