Jonathan Spencer

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I'm a fourth 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:
   - 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:
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:
Networks and Optimization TA (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)

Volunteer Work:
Engineering Tutor – 5+ hrs per week in undergraduate EE topics at BYU, 2013-2015
English Teacher – ESL for 600+ Elementary school kids in rural Hunan, China, 2016
Missionary –Family counseling and addiction recovery in Argentina, 2010-2012

Skills

- Imitation Learning/IRL (MaxEnt: Python)
- Reinforcement Learning (DQN, PG: Python)
- Radar Signal Processing (Python, MATLAB)
- Analog and RF Circuits (Design, Prototyping)
- People person, very outgoing, excellent in teams.
- Multilingual: Spanish (Adv.), Mandarin (Beg.)

Personal Interests

Lover of running, Ironman triathlete, Eagle Scout, accomplished cellist, avid linguist