Jonathan Spencer

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I'm a third year Ph.D. student at Princeton studying imitation learning and reinforcement learning with specific interests in modeling and prediction for autonomous driving applications. I have a strong background in sensors and sensor signal processing from my master's degree and a strong background in many aspects of information theoretical and practical machine learning.

Education

Ph.D. in Electrical Engineering (candidate) – Princeton University – Fall 2016 to Present
Inverse Reinforcement Learning, Reinforcement Learning, Probabilistic Modeling

M.S. in Electrical Engineering – Brigham Young University –2015
Radar hardware and signal processing for UAV applications

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

Publications

- Lan, **Spencer,** Chen, Brinton, Chiang. "A Probabilistic Model for MOOC Discussion Forums." ECML-PKDD 2018
- Sahawneh, Wikle, Roberts, **Spencer,** McClain, Warnick, Beard. "A Ground-Based Sense-and-Avoid System for Small Unmanned Aircraft." JAIS 2018
- **Spencer**, "A Compact Phased Array Radar for UAS Sense and Avoid" BYU Thesis 2016
- 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

Patents

- Warnick, **Spencer**. "Phased array radar systems for small unmanned aerial vehicles." US Patent 20180011180A1

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 Communications 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+ hours per week in undergraduate EE topics at BYU, 2013-2015
English Teacher – ESL for 600+ Elementary school kids in rural Hunan, China, 2016
Missionary – Religion, 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