Blake Warren Wulfe

Personal Information

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Research Interests

Reinforcement Learning, Probabilistic Graphical Models, Artificial Intelligence

Education

<u>Stanford University</u>   August 2015 - December 2017
M.S. Computer Science, Specialization in Artificial Intelligence
GPA: **3.94 / 4.0**

<u>Vanderbilt University</u>   August 2010 - May 2014
B.S Computer Science, Cum Laude & Honors
Minors in Mathematics & Engineering Management
GPA: **3.77 / 4.0**

Research Experience

<u>Adobe Research</u>   June 2017 - September 2017
Data Scientist Intern
Hierarchical, Adversarial Imitation Learning of Drawing Policies
⬦ Applied generative adversarial imitation learning (GAIL) to the task of learning to draw sketches from human examples, demonstrating superior sample efficiency over baseline methods (Python)
⬦ Proposed a hierarchical extension of GAIL exhibiting improved transfer performance

<u>Stanford Intelligent Systems Lab, Stanford University</u>   April 2016 - December 2017
Research Assistant
Automotive Scene Risk Prediction
⬦ Implemented a framework for deriving risk estimates of simulated automotive scenes (Julia)
⬦ Addressed collision rarity challenges through importance sampling of a Bayesian network (Julia)
⬦ Trained domain adaptation, neural network models to predict collision risk (Python)
⬦ Manuscript under review in Autonomous Agents and Multiagent Systems (AAMAS) 2018

Deep Reinforcement Learning of Collision Avoidance Policies
⬦ Developed a deep reinforcement learning system that solves for optimal policies 2x faster than the baseline dynamic programming method
⬦ Built a Boost.Python interface to an existing, high-fidelity aircraft encounter model (C++)
⬦ Implemented and compared a variety of deep reinforcement learning algorithms (Python)
⬦ Designed and evaluated a set of novel sampling methods to speed learning

Intelligent Agent Action Coordination
⬦ Implemented a novel method for coordinating UAV actions that reduces collisions 25%-75%
⬦ Developed an aircraft encounter simulation framework for evaluating agent policies (Julia)
⬦ Designed and ran experiments in order to test the effectiveness of the proposed method
⬦ Published results as second author in Digital Avionics Systems Conference (DASC) 2016

<u>Human-Machine Teaming Lab, Vanderbilt University</u>   May 2013 - August 2013
Research Assistant
3D Map Generation of Archaeological Sites
⬦ Assisted in operating, repairing, and programming autonomous UAVs
⬦ Gathered images for conversion to 3D mappings during research trip to archaeological sites in Peru

Professional Experience

<u>Accenture, Austin, TX</u>   August 2014 - August 2015
Business and Systems Integration Analyst
⬦ Implemented software providing a natural language interface to users (Java)

<u>Invivolink, Nashville, TN</u>   May 2012 - August 2012
Software Engineering Intern
⬦ Implemented medical barcode parsing software (C#)

Computer & Technical Skills

Programming Languages: Proficient in Python, experience with Julia, C++, C, Matlab
Software: Deep learning frameworks (TensorFlow, Theano)