

Bryon Kucharski

11 Quarry Circle, East Haven, CT | (203) 988 - 5897 | bryonkucharski.github.io | bryonkucharski@gmail.com

Education

Master of Science in Computer Science, *University of Massachusetts Amherst*, Exp. May 2020 GPA: 3.71/4.00
Bachelor of Science in Computer Engineering, *Wentworth Institute of Technology*, 2018 GPA: 3.84/4.00

Internship Experience

- Intern, Human-Autonomy Interaction Laboratory, Sonalysts, Waterford, CT** Summer 2019
- Explored n-gram, CNN, and ensemble methods to classify authors in Twitter, news, and email datasets
 - Formulated the pipeline and collected/cleaned datasets for time series forecasting of satellite signal strength based on terrestrial and space weather
- Test Development Engineering Co-op, Teradyne, North Reading, MA** 2017 Full Time, 2018 Part Time
- Developed a C# and C++ API along with a WPF GUI for controlling a Universal Robots robotic arm
 - Queried Microsoft SQL server to create plots for a statistical process control tool in a C# WPF application
- Electrical Engineering Intern, Gerber Technology, Tolland, CT** Summer 2016
- Renovated an existing circuit board test fixture by reconstructing cable sets and enhancing test software
 - Implemented two Google Apps Script ticketing systems to manage deviations in the manufacturing process

Languages and Tools

Most Experience: Python, PyTorch, C# **Exposure To:** Keras, C++, Java, MATLAB, Unity, SQL

Project Experience

- Master's Project, In collaboration with Microsoft Research Montréal** [\[code\]](#) [\[report\]](#)
- Explored generalization in reinforcement learning agents for text-based computer games
 - Fine-tuned BERT to extract knowledge graph tuples and generated text commands from raw text
 - Implemented two different algorithms to train across multiple environments at once
- Multi-resolution Attention with Signal Splitting, Adviser: Dr. Madalina Fiterau** [\[code\]](#) [\[paper\]](#)
- Developed a model agnostic deep learning method for multivariate multi-resolution time-series classification
 - Categorized each variable in the dataset into one of three distinct frequencies and learned separate RNN models for each frequency to make a final classification prediction
- 2D Image to 3D Model Generation** [\[code\]](#) [\[report\]](#)
- Improved average reconstruction error of 3D-VAE-GAN architecture by incorporating multiple 2D images of an object when generating a corresponding voxelized 3D model
 - Extended an existing PyTorch implementation of 3D-GAN to 3D-VAE-GAN and Multiview-3D-VAE-GAN
- Self Driving Car Reinforcement Learning Simulation** [\[code\]](#) [\[report\]](#)
- Collected 10,000 images from the DuckieTown self driving car simulator to train an variational autoencoder
 - Studied the use of encoding the state with the pretrained VAE while learning a DDPG control policy
- Learning Trajectory of a Projectile Object, Undergraduate Senior Design Project** [\[code\]](#) [\[paper\]](#)
- Created a XY plotter robot to predict the landing location of a ping pong ball projected off a ramp
 - Trained the agent using Deep Q-Learning in a Unity simulation and transferred to a real world robot

Publications

- 2019 *Multi-resolution Attention with Signal Splitting for Multivariate Time Series Classification.* **Bryon Kucharski**, Rheeya Uppaal, Bhanu Singh, Iman Deznabi and Madalina Fiterau. ICML19 Time Series Workshop.
- 2019 *Machine Learning Based Heuristic Search Algorithms to Solve Birds of a Feather Card Game.* **Bryon Kucharski**, Azad Deihim, and Mehmet Ergezer. EAII19 BoF Research Challenge.
- 2018 *Real-World Projectile Catching with Reinforcement Learning: Empirical Analysis using Discretized Simulations.* **Bryon Kucharski**, Adam Ziel, Michael Hickey, and Collin Travers. MIT URTC.

Awards and Activities

- 2014-2018 **Senior Captain**, Wentworth Institute of Technology Baseball
2018 President's Award for Computer Engineering
2018 IEEE Eta Kappa Nu (IEEE-HKN)