Declan F. Nelson

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Education

Georgia Institute of Technology, Atlanta, GA   *Expected Graduation: Spring '22*
- Candidate for Bachelor of Science in Computer Science and Chinese   GPA: **3.91/4.00**
- Threads: Artificial Intelligence and Theory

Work and Research Experience

WPI Data Science Laboratory, Worcester, MA   *Summer 2019*
Software Engineer Intern
- Created novel dimension reduction algorithms more efficient, robust, and flexible than current state-of-the-art models
- Implemented neural networks and custom loss functions using Python and Pytorch to find lower dimensional manifolds
- Model completed dimension reduction tasks that took current models over 30 minutes in just 0.25 seconds
- Served as the liaison between research team, PhD mentor, and faculty to manage expected deadlines and workload
- Wrote a research paper accepted by multiple conferences (see publications) and presented research at MIT IEEE URTC

Georgia Tech RoboSense, Atlanta, GA   *Spring 2019*
Robotic Research Assistant
- Studied and replicated a statistical model for the motion of fish as an algorithm for marine exploration using MATLAB
- Implemented algorithm on helium blimp and was able to search more area faster than other competing search algorithms
- Demonstrated the searching efficiency of fish motion in comparison to correlated random walk using computer vision

Passion Projects

Mad Money   *Summer 2019*
Web Crawler/Financial Analysis Tool
- Designed a web crawler to comb through *Mad Money* recaps for stock suggestions using Python and Beautiful Soup
- Tracked and graphed prices utilizing Alpha Vantage and Matplotlib to identify irrational investing behavior
- Created an automated script using Selenium to select and scan new recap article every weekday
- Implemented as a daemon to update periodically using Launchd
- Demonstrated an average net loss of 0.07% over a 7 day interval

sMARTA   *Fall 2019*
iOS Transportation Safety App
- Created an iPhone application for safely traveling on Atlanta's public transportation by sharing trip details with friends
- Calculates time to destination from MARTA's API, texts selected contacts trip details, and alerts friends of safe arrival
- Contacts friends with follow up steps if user does not confirm safely arriving after expected arrival time

Skills and Achievements

Programming: Java, Python, C, Swift, MATLAB
Technical Knowledge: Git, Pytorch, BeautifulSoup, Alpha Vantage, JavaFX
Achievements: Best Presenter WPI Data Science Fair, MIT IEEE Research Acceptance, CUR 2019 Acceptance
Languages: Chinese (conversational)

Publications

Declan F. Nelson, Jessica Bader, Thalia Chai-Zhang, "Neural Network for Nonlinear Dimension Reduction Through Manifold Recovery", Undergraduate Research Technology Conference (URTC) 2019 IEEE MIT