# 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