Akshay Aravamudan

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PROJECTS Engineering/Project experience

Modelling Information Diffusion as a Survival Process
- Master's Thesis wherein the survival process was generalized as a point process.
- Used to get insight on the diffusion of software vulnerability across three platforms: Reddit, Twitter and Github.
- Implemented a parallelized Expectation-Maximization algorithm to read in large datasets and obtain a matrix of transmission distributions.
- Used random-time change theorem to devise a goodness of fit test.
- Developed simulation using a modified version of Ogata's thinning algorithm.

Population Migration Prediction
- Academic project that used an LSTM time series predictor to predict the expected net migration.
- Trained the model using census data from government website.
- Objective was to verify spatiotemporal behaviors in large populations.

MorphWing: An adaptive airplane wing designed for dynamic drag optimization.
- Control systems lead for the senior capstone project.
- Responsible for delegation and supervision of any controls system related tasks.
- Developed the embedded systems architecture.
- Developed a prototype android application to interact with the wing.

Docker Container Vulnerability Research
- Part of a team that analyzed various technologies to perform vulnerability analysis for containers and use this information to deal with these vulnerabilities on the linux operating system.
- Researched open-source vulnerability analysis tool CLAIR to provide vulnerability information on Docker containers.

EXPERIENCE

FLORIDA INSTITUTE OF TECHNOLOGY **Melbourne,Fl**
08/2015 – 05/2016 ***Mathematics Tutor***
- Tutored students in freshmen, sophomore and junior level mathematics courses. Courses included college algebra, pre-calculus, calculus 1, calculus 2, differential equations and calculus 3.

FLORIDA INSTITUTE OF TECHNOLOGY **Melbourne, Fl**
08/2016 – 05/2019 ***Interface Developer***
- Interface developer in Java for building an effective data pipeline to mathematical and simulation models.
- Tasked with development of a multi-threaded discrete event simulation for mimicking and forecasting situations in a manufacturing plant. This is under the intention of improving the efficiency of a local manufacturing plant.
- Tasks performed included data cleaning, graph theory applications, data analytics, developing project codebase, OOP UML modeling for system and simulation development.

FLORIDA INSTITUTE OF TECHNOLOGY **Orlando, Fl**
07/2019 – 10/2019 ***Teaching Assistant***
- Teaching assistant for a machine learning primer course intended for employees in Disney Technology LLC.
- Assisted instructor in preparing course materials and Jupyter Notebooks intended to teach machine learning concepts.
- Course material covered rigorous mathematical approaches to well-known machine learning concepts such as Linear Regression, Multinomial Regression, Radial Basis Functions, Regularization, Multi-

- Layered Perceptron, Auto-Encoders and Recurrent Neural Networks.
- Assisted learners with answers to conceptual queries as well as navigating the numpy library for the Python programming language.

EDUCATION

FLORIDA INSTITUTE OF TECHNOLOGY **Bachelor of Science, Computer Engineering**

2014 – 2018

- Major: Computer Engineering
- Minor: Computational Mathematics
- Summa Cum Laude

FLORIDA INSTITUTE OF TECHNOLOGY **Masters of Science, Computer Engineering**

2018 – 2019

- Graduation: July 2019
- Specialization in Machine Intelligence
- Masters thesis dealing with information diffusion in social networks.
- GPA: 3.85

SKILLS

- Proficient in mainstream machine learning techniques.
- Worked with subjects dealing with neural networks, probabilistic modeling, and stochastic processes.
- Good problem solving and analytical skills.
- Quick to find feasible solutions to given problems.
- Proficient in Object Oriented Programming Techniques in C++, Java and Python.
- Experience working with Python and associated machine learning and scientific analysis packages.
- Interest and ability to stay up to date on current research in popular journals.
- Experience in modeling and implementing software systems to scale.
- Experience using git and svn for version control.
- Experience with using parallel processing libraries including MPI, OpenMP, Dask and CUDA programming techniques.
- Experience with Amazon AWS platform.
- Proficient with the Linux terminal.
- Worked with SQL databases.

REFERENCES

Aldo Fabregas Ariza PhD, Supervisor for current job
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Carlos Otero PhD
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