Isaac Dykeman

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6310 S Main Street
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education
Rice University
Computer Science
BS candidate
Class of 2018

Sidwell Friends
Class of 2014

languages
Python: Building machine learning experiments and applications, as well as many academic projects, small tools, and web services.
C#: Creating games and 3D content and animation authoring software.
Java: Experimenting with graphics, animation, and procedural generation.
C: Creating academic projects including a malloc package, a proxy server, and a basic terminal.

other experience
drone aviation: Mounted lasers tools to drones for measuring building cracks.
robotics: Built and programmed robots for competitions in high school. Competed in FIRST robotics competitions and MATE underwater robotics competitions.

tools
machine learning: Tensorflow, Theano, AWS, Jupyter
graphics: XNA/Monogame, Processing, OpenGL
web: Flask, Heroku
developer tools: Git

research experience

Summer 2016 **Research Intern, Tableau** Palo Alto, CA
•Implemented a deep recurrent neural architecture for measuring semantic similarity between phrases by embedding them in a word vector space.
•Created a system to understand the semantic context of a raw data table and make English disambiguation assumptions accordingly.
•Surveyed literature related to phrase level semantic similarity, word sense disambiguation, and phrase embedding.
Technologies: **recurrent neural networks, word embeddings, Tensorflow**

2015 - present **Deep learning research, Rice University** Houston, TX
•Using LIDAR terrain maps and convolutional neural networks to evaluate individual homes' vulnerability to hurricane damage. This could be useful to authorities who currently rely on crude wind tunnel experiments.
•Modelling stochastic processes from image data. This leaves us without the same assumptions that exist in standard image recognition tasks, since some invisible factors contribute to storm damage.
Technologies: **deep convolutional neural networks, Tensorflow**

professional experience

2015 - 2016 **Intern/Freelance Software Engineer, ExtraHop** Seattle, WA
•Developed a container based deployment system for ExtraHop's products to speed up development and ease testing of distributed product configurations.
•Reduced the initial build of the product from a labor intensive day to a reliable two hour automated process.
•Built a prototype natural language interface for the ExtraHop system capable of taking commands with variable arguments.
Technologies: **genetic algorithms, containers, Bash, Python**

2014 - 2015 **Freelance Software Engineer, PrepMatters** Bethesda, MD
•Built a computer vision based web service to allow remote submission and scoring of standardized test answer sheets.
•Developed a web app for students to track their impressions of school visits.
Technologies: **OpenCV, Java, Python, Flask, Heroku, PostgreSQL**

Summer 2013 **Software Development Intern, Augary** Potomac, MD
•Developed a system for detecting lanes, cars, and road signs in images.
•Created a tool for hand labelling ground truth data.
•Optimized Augary's display system by moving calculations to the GPU.
Technologies: **machine learning, OpenCV, Java, OpenGL, GLSL**

personal projects

2014 - 2016 **Brimming Sea** brimmingsea.com
•Built a real-time strategy and action game set in a procedurally generated voxel world running in a custom built engine.
•Built an application for creating voxel models and procedurally animated characters for use in the game.
Technologies: **C#, XNA, HLSL**