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 models and applications, as well as academic projects, tools, and web services.
C#: Creating games and 3D content and animation authoring software.
Java: Graphics, animation, and procedural generation.
C: Academic projects including a basic malloc package, proxy server, kernel, and file system.

tools
machine learning: Tensorflow, AWS
graphics: XNA, Processing
web: Flask, Heroku
version control: Git
Other: Development in Ubuntu, CLI

publications

2017 **Applying Pragmatics Principles for Interaction with Visual Analytics** IEEE VAST
•This paper describes the system I worked on during my internship at Tableau (see below).

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.
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.
•Created a model which improves (+.2 AUC) on the state of the art for single home level damage probability estimation.
Technologies: **deep convolutional neural networks, Tensorflow**

professional experience

Summer 2017 **Software Engineer Intern, Uber Advanced Technologies Group** Pittsburgh, PA
•Built an experimental LIDAR range image based perception system for Uber's autonomous vehicles using convolutional neural networks.

Summer 2015 **Software Engineer Intern, ExtraHop** Seattle, WA
•Developed a container based build system for ExtraHop's product, reducing a day long manual build process to a reliable, automated process.
•Built a prototype natural language interface for the ExtraHop product capable of taking English commands with variable arguments.
Technologies: **Linux containers, Bash, Python**

Summer 2014 **Freelance Software Engineer, PrepMatters** Bethesda, MD
•Built a computer vision based web service to allow remote submission and scoring of standardized test answer sheets.
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 labeling ground truth data.
•Optimized Augary's mobile display system by moving calculations to the GPU.
Technologies: **OpenCV, Java, OpenGL, GLSL**

personal projects

2014 - 2015 **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**