Brooks Mershon

https://github.com/bmershon/
mershon.brooks@gmail.com | 215.595.3694

EDUCATION

DUKE UNIVERSITY
BS in Computer Science
Expected May 2016 | Durham, NC
Cum. GPA: 3.7 / 4.0
Duke Cycling Team Member

NEW YORK UNIVERSITY
Writers in New York 2014

PENNSBURY HIGH SCHOOL
Valedictorian | Fairless Hills, PA

LINKS

Github:// **bmershon**
bl.ocks:// **bmershon**
LinkedIn:// **bmershon**
Twitter:// **@bgmershon**
Flickr:// **b_mershon**

COURSEWORK

Selected Favorites:
Euclidean and Non-Euclidean Geometry
Topology with Applications
GIS and Geospatial Analysis
Linear Optimization / Game Theory
Database Systems
Intellectual Property Law
Public Speaking
Digital 3D Geometry
Statistical Inference

SKILLS

PROGRAMMING
JavaScript (ES6) • D3 • Git • Make
HTML • CSS • LaTeX
Familiar:
Python • Java • R • PostgreSQL
Chrome extension architecture

SOFTWARE
Familiar:
Adobe Illustrator • Cinema4D

MANUAL
RC model aviation (10 years)
Pursuing private pilot license
(CAP Cessna 172, 139+ landings, solo flight)
Digital photography (DSLR)

EXPERIENCE

THE WASHINGTON POST | Graphics Intern
June 2015 - August 2015 | Washington, D.C.
- Designed graphics for print and online publication using Adobe Illustrator.
- Developed an automated pipeline using Makefiles for rendering a map from shapefiles and tabular data.
- Worked on a modular library that helps manage the D3.js projection pipeline for maps with one or more layers of geometry.
- Developed an interactive 3D globe for visualizing nuclear testing.

DUKE UNIVERSITY PRESS | Books Editorial Intern
Jan 2015 – May 2015 | Durham, NC

VERSAL | Software Engineering Intern
May 2013 – Aug 2013 | San Francisco, CA
- Versal is an educational technology platform focused on bringing highly interactive education to the web.
- Developed simulations related to optics, epidemiology, image processing, and geometry as the company launched.

PROJECTS

EQUIDECOMPOSING POLYGONS | Algorithm animation
March 2016 - Present | Duke University
Given two shapes of equal area, let's cut one up and rearrange the pieces to form the other. This current project has taught me that hinged dissections deserve more attention. The code is written using ES6 modules as a D3 plugin.

PROCRUSTES ALIGNMENT | Algorithm animation
March 2016 | Duke University
A small amount of code was required of the student to implement Procrustes Alignment for two point clouds using Chris Tralie's mesh library. The code I wrote, however, was rather tricky. The visual results of the iterative closest points algorithm are quite entertaining.

3D SPECULAR REFLECTIONS | Interactive Simulation
February 2016 | Duke University
Using a WebGL rendering engine written by Chris Tralie, I implemented functions that calculate image sources, generate reflection paths, create an impulse response, and compute axis-aligned bounding boxes for speeding up ray-tracing.

WIKIBLOCKS | Wikipedia and Visualization
Sept 2015 – Dec 2015 | Duke University
Developed a fully-functioning prototype Chrome extension and backend system that finds relevant visualizations for a STEM-related Wikipedia article. Set up and benchmarked AWS server.

TEACHING TOPOLOGY WITH CODE | Math + Code
Sept 2014 – Dec 2014 | Duke University
Built several interactive pedagogical tools using D3 for a course in computational topology. Wrote a well-received paper reflecting on the design process and thoughts for improving the way upper-level math is taught using code.