

Spencer Bruce

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Education and Honors

Columbia University – The Fu Foundation School of Engineering and Applied Sciences

April 2021

B.S. in Computer Science: Vision, Graphics, Interaction, and Robotics Track, Minor in Sociology

Relevant Courses: Artificial Intelligence (Python), Computer Graphics (Java), Deep Learning for Computer Vision (Python), Data Visualization (JS), Natural Language Processing (Python), Creative Embedded Systems (JS, Python, Arduino), Advanced Programming (C/C++), Data Structures and Algorithms (Java, Scala), User Interface Design (JS)

Academic Achievements: Cum Laude (3.92), Tau Beta Pi Engineering Honor Society, Dean's List

Technical Skills

Languages: Python, JavaScript (React, jQuery, d3), Java (OpenGL), C/C++, Scala, Processing, HTML, CSS

Tools & Technologies: Adobe CC Suite, Final Cut Pro X, Figma, Tableau, Git, LaTeX, CAD, Blender, 3D printing, laser cutting, sewing

Experience

Full Stack Engineer – Climate Neutral; Remote

June 2022 - December 2022

- Performed first in-house emission factor update, hybridizing and transforming 10,000+ entries in Ecolnvent and Exiobase datasets
- Constructed interactive dashboards in QuickSight for insight and statistical analysis of user data split across multiple data sources
- Refactored over 3,000 lines of legacy code to ensure long-term usability in inevitable future versioning and methodology upgrades
- Designed and programmed major new product features (React, TS, Python), including a new interaction flow for users returning YoY
- Conducted major data cleanliness and consolidation tasks, reformatting and unifying data for 1800+ users

Head Teaching Assistant – Introduction to Programming in Python; Columbia University

January 2019 - April 2021

- Recipient of Andrew P. Kosoresow Memorial Award for Excellence in Teaching, performed exceptionally in student reviews
- Introduced 200+ students to computing fundamentals including object-oriented programming, sorting algorithms, and data structures
- Managed team of 8-12 teaching assistants to ensure uniform standards in instruction and grading
- Developed Bash and Python script infrastructure to streamline grading, seating arrangements, and course organization/logistics

Teaching Assistant – Advanced Programming in C/C++; Columbia University

January 2020 - April 2020

- Introduced 300+ students to systems programming topics including process control, TCP/IP networking, and memory management
- Maintained remote Linux server which hosts student assignments, exams, and grading scripts with 15 other teaching assistants
- Organized hackathon for students and alumni, including website maintenance, sponsorship search, and merchandise purchasing
- Overhauled course instruction during transition to remote learning, including recording and dissemination of digital instruction material

Web Design Intern – SUNY Center for Professional Development; Syracuse

May 2019 - August 2019

- Spearheaded UI design and implementation of CPD website using d4 CMS in preparation for SUNY Online product release
- Managed website production and maintenance for 50+ educational and instructional workshops
- Created branding and promotional material for SUNY CPD and its affiliates, including 64 college campuses throughout New York

Projects

TikTok and Spotify Trend Data Visualization ([Link](#))

- Aggregated data from TikTok audio trends using BeautifulSoup web scraping and Spotify API
- Designed, programmed, and iterated on an interactive dashboard visualizing trends using D3.js and Observable

Interactive COVID-19 Demographics Dashboard ([Link](#))

- Curated custom dataset from various governmental and COVID-19 regulatory sources using NumPy
- Visualized data in interactive parallel coordinate dashboard using D3.js and Observable

Polanding Twitter Bot ([Link](#))

- Collected, annotated, and cleaned custom dataset of photos with red-white boundaries
- Trained TensorFlow Object Detection API + Google's MobileNet architecture on COCO + custom datasets
- Deployed Twitter bot using Raspberry Pi and Tweepy API that responded to tweets with comedic videos that go "Polanding"

Quadruped Robot ([Link](#))

- Designed spherical quadruped robot using SolidWorks following class size and component constraints
- Constructed and programmed robot using Raspberry Pi, additive manufacturing, and various machining techniques
- Performed gait optimization using PyBullet to simulate movement in a virtual playground

Interests and Other Activities

Sustainability, public transit, tennis, hiking, distance running, crafting, sweets, Thai food, Rubik's cubes, reading, video games

CliftonStrengths: Achiever, Woo, Positivity, Communication, Input