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 - March 2023***
- ○ Performed first in-house emission factor update, hybridizing and transforming 10,000+ entries in EcoInvent 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