Alexander Williams

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Saint Paul, MN
Interested in relocation

Experience

- **BetterYou** — Saint Paul, MN
  Backend Software Engineer — *Sept. 2020 – Present*
  - **Backend Scaling and Restructuring**: Expanding and refactoring a serverless Node.js GCP backend serving iOS, Android, and web. Reduced calculation requirements in the backend's highest traffic system by more than 97%. Transitioned half a dozen live user-facing systems from Firestore to Realtime Database with no downtime. Leading transition from legacy development workflow to a DevOps based monorepo branching model.
  - **Feature Development**: Built decentralized relational cross database social network utilizing Cloud Tasks, PubSub and Firestore. Created business-facing data marts that reduced skilled, manual, mission-critical workload by 75%. Improved engagement with critical coaching feature by more than 20%.
  - **Data Systems**: Created ad-hoc Python and Jupyter notebook analyses for both business and data science teams. Built data pipelines informing live recommendation and coaching systems and internal tools to monitor user-base health.
- **Valence Life Sciences** — New York City, NY
  Webmaster, Frontend Engineer (from May 2020) - part time contract — *Apr. 2018 – Aug. 2020*
  - **Website Development & Maintenance**: Built websites in modern React. Reduced company hosting costs by 99%. Improved UI and used SEO to increase site traffic 300% over two years.
- **Northeastern University Mathematics Department** — Boston, Massachusetts
  Algorithmic Researcher — *Feb. 2019 – Jan. 2020*
  - **Research**: Studied high-dimension complex analytic singularities using Python, Sage MATH and Singular, leveraged operator-controlled Mersenne twister generation via a multistage stochastic Markov chain process. Decreased solving time in 3 - 5 dimensions from on average 10 minutes to 5 seconds, reducing skilled labor requirement by over 99% and increasing sample size 10000x. Parallelized algorithm via Bash script and GNU parallel. Deployed algorithm remotely via a Slurm job array on a centOS compute cluster.
- **Code for America, Boston Brigade** — Boston, Massachusetts
  Data Analyst — *Mar. 2019 – Apr. 2019*
  - **EPA Data Analysis**: Worked with a remote GCP SQLite database liaising to the EPA's water quality database to analyze multi-billion point datasets and derive insights into water quality in the US. Created dynamic data visualizations in Power BI to indicate trends and contaminant hot spots.

Education

- **Flatiron School** — New York City, New York
  Full Stack Software Engineering — *Nov. 2019 – Mar. 2020*
- **Northeastern University** — London, UK and Boston, Massachussetts
  Computer Engineering, Math & Physics - 83 credits completed, dropped out. — *Sept. 2018 – Apr. 2019*
- **Bard Queens** — New York City, New York
  AA degree completed during high school. Took OOP and Python with Linear Algebra. — *Sept. 2014 – Jul. 2018*

Selected Projects

- **Cruze - HackNYU 2020 Winner**: Created a custom routing algorithm which utilized local bike infrastructure data to increase cyclist safety using weighted routes determined via imported data from NYC Open Data and utilized ArcGIS' REST API. Won 1st Place Health & Sustainability and Best Sports Hack. Link to project page.
- **DirExit - DragonHacks 2020 Winner**: Created a raspberry-pi fire exit sign, intelligently routing evacuees to unblocked exits. Designed pathing with backtracking and lossy compression algorithms in Python, worked on final product integration and visualization. Won 1st Place Overall and Best Data Analysis & Visualization. Link to project page.

Selected Skills

- **Languages**: Javascript, Python, SQL **Technologies**: Node, GCP, noSQL, Firebase, React, Flask, Rails