

BRIAN COOPER

BS Computer Science, University of Minnesota

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🌐 <https://brian-cooper.com>

EXPERIENCE

Software Engineer (Remote)

University of Minnesota | June 2020 - Present

Sole developer working on interdisciplinary and international team. Lead and architect technical design decisions to create robust and scalable solutions. Create mobile, web, and desktop applications for mental health, including applications of mindfulness, meditation, fitness, breathing, and yoga. Interface with wearable devices and on-device sensors using native Kotlin bindings to measure variables such as heart rate variability and photoplethysmography. Create backend APIs (REST, GraphQL). Manage AWS resources with Terraform, Serverless Framework, and Kubernetes. Create graphical assets for marketing and design. Technologies used: React, React Native, Redux (Redux Toolkit), RxJS (redux-observable), WebSockets, Kotlin, Electron, Node + Express, Deno + Oak, TypeScript, Firebase, Docker + Docker Compose, Kubernetes, Terraform, Serverless Framework, Postgres, TimescaleDB, MongoDB, Prisma, graphql-yoga, AWS (Lambda, EC2, RDS, S3, Amplify, API Gateway), Adobe Illustrator, Adobe Photoshop.

Full Stack Engineer (Primarily Remote)

DankWorks LLC & CodeDank LLC | April 2019 - Present

Startup companies; create full stack applications primarily leveraging AWS, Docker (on ECS), Django, and React. Provide software consultation. Operate within an Agile workflow. Sponsored CPAC 2020 in Washington DC.

Geospatial Algorithms Research Assistant (Remote)

Minnesota Population Center | December 2019 - February 2020

Implemented various geospatial algorithms for the Minnesota Population Center such as Geographic Self-Organizing Maps (GeoSOM), Average Isoperimetric Quotient (ISO Q), and Akaike Information Criterion (AIC). Combined use of MATLAB, R, Python, and Jupyter with various statistical and machine learning libraries.

Interactive Visualization Designer (Remote)

University of Minnesota | June 2019 - March 2020

Developed interactive visualizations and games for lessons that teach STEM concepts under National Science Foundation's *Hour of Cyberinfrastructure* project (Award Abstract #1829708) using JavaScript and D3.js. Wrote Python scripts and code to augment the lessons. Integrated visualizations into Jupyter Notebooks with various UI/UX extensions and modifications. Created SVG components for use in lessons with Adobe Illustrator.

Deep Learning for Dendrology Research Assistant (Remote)

Griffin Lab - Dendrology | December 2019

Created convolutional neural networks for feature extraction and classification from high-resolution dendrological imagery (wooded plants), such as tree cell separation, cell wall width, and interspecies discrepancies. Used various imaging and anomaly detection techniques, such as Sobel filtering and Canny edge detection. Implementations used scikit-learn and OpenCV for prototypes, with TensorFlow and Keras for formal deep learning model construction.

EDUCATION

University of Minnesota - BS Computer Science

Fall 2018 - Fall 2019 (graduated December 2019)

- Emphasis: Artificial Intelligence, Bioinformatics

Normandale Community College - AS Computer Science

Fall 2016 - Spring 2018 (graduated May 2018)

SKILLS

- **Languages:** Python, JavaScript (TypeScript), C++, C#, Rust, Kotlin
- **Web:** React (React Native), Redux, GraphQL, Django, Node (Express), Deno (Oak), RxJS, AWS, WebGL (Three.js)
- **Other:** Adobe Suite (Ps, Ai, Pr, Id, Ae), PostgreSQL, MongoDB, Docker (Docker Compose, Kubernetes), TensorFlow, Keras, scikit-learn