Cameron Beck

Software Engineer
Bachelor of Science
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LinkedIn
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Skills

- **Programming Languages**: Python, TypeScript, JavaScript, SQL, HTML / CSS, Bash
- **Libraries & Frameworks**: React, Redux, Node.js, Express, Sequelize, Flask, SQLAlchemy, Selenium, Pytest, Mocha
- **Other Professional Skills**: Agile, AWS, Docker, Git, Linux, MongoDB, PostgreSQL, REST APIs, Redis, WebSockets

Projects

- **Real-time Trading Engine**

  High-frequency, multi-chain arbitrage trading made simple (MongoDB, NodeJS, pm2, TypeScript, WebSockets)

  – Engineered a microservices-based, event-driven arbitrage trading engine to capitalize on price differentials across numerous major cryptocurrency chains, including Ethereum, Solana, and Polkadot

  – Applied graph-theoretically optimized swap routing to maximize profits and minimize network fees across decentralized exchanges, allowing for execution of up to 1200 trades per day (minimum $0.12 profit margin per trade)

- **Browser Extension: StructyHub** ***Latest***

  Automatically sync your Structy submissions with GitHub (GitHub API, JavaScript, OAuth2) GitHub

  – Designed and developed a free, open-source extension published on the Chrome Web Store. StructyHub allows developers to easily bolster their portfolios while they hone their data structures & algorithms skills

  – Used the OAuth2 protocol, GitHub API, and various JavaScript APIs (e.g. webRequest) to detect test submissions, assess correctness, and sync the submission with GitHub in less than 1 second while maintaining a light memory footprint

- **Full-stack Web Application: Smack** ***Site***

  Slack-inspired live messaging (AWS S3, Docker, Flask, PostgreSQL, React, Redis, Redux, SQLAlchemy, Socket.IO) GitHub

  – Utilized WebSockets and Redis to facilitate high performance real-time, bidirectional communication between users, employing graceful disconnection strategies for connection management to promote scalability

  – Leveraged the OAuth2 protocol to allow users to conveniently log in or register with trusted providers such as Google, adhering strictly to OWASP standards for security

  – Integrated AWS S3 storage services using Python's boto3 library, enhancing file and media management capabilities within message attachments while reducing server load and increasing performance

- **Full-stack Web Application: Seddit** ***Site***

  The front page of the Internet (AWS S3, Docker, Flask, PostgreSQL, React, Redux, and SQLAlchemy) GitHub

  – Created responsive CSS and a device-agnostic UI with React, emphasizing mobile-friendliness, modular design, and component reusability. Ensured consistent application behavior and optimized data flow using Redux for state management

  – Effectively tackled hierarchical comment challenges using the adjacency list pattern in PostgreSQL. Seamlessly integrated this backend solution with the React/Redux frontend, delivering users an intuitive thread navigation experience

Experience

- **University of Connecticut - Department of Physiology and Neurobiology** *Jul 2021 - Aug 2022*

  Computational Research Assistant Storrs, CT, USA

  – Developed an ETL-style computational pipeline, primarily using Python and R, for the systematic aggregation, processing, and visualization of large-scale single-cell RNA-seq datasets, evaluating differential expression & pseudotime cell trajectories

  – Applied statistical and machine learning techniques - such as k-nearest neighbors, principal component analysis, and t-distributed stochastic neighbor embedding - to classify unlabeled cells as cancerous or non-cancerous

  – Acted as key liaison for implementing interdisciplinary project needs, bridging gaps between diverse cross-functional teams

Education

- **University of Connecticut** *Aug 2016 - May 2021*

  Bachelor's of Science, Molecular and Cell Biology Storrs, CT, USA