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Kefan Cao

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Technical Skills

Programming / Scripting Python, C++, C, C#, Java, Kotlin, GoLang, Typescript, Javascript, SQL, Racket/Lisp, Haskell, R, Bash
Tools / Technology React.js, Node.js, AWS, MySQL, HTML/CSS, Bootstrap, Git, LaTex, Firebase, UML, Neo4j, New Relic

Experience

Terrace.fi
Software Engineer — May, 2023 - Aug, 2023
- Working on the trading engine in churning out a price estimate API for execution at different levels of speed for multiple blockchains.

Capital One
Software Engineer — Jan, 2023 - Apr, 2023
- **Won first place** in a company hackathon of more than 300 engineers by pioneering a **machine learning** incident resolution system.
- **Lead** a team of engineers to implement an advanced observability architecture which **I proposed** to director level stakeholders.
- Enabled core observability tool support for **Go** and **Javascript** in Canada through **New Relic** and **distributed tracing**.

Cisco Systems
Software Engineer — Jan, 2022 - Apr, 2022
- Influenced and enabled over **30%** of the inactive functions for a part of the internal Layer 3 forwarding information base.
- Improved the run time of a traffic generator by **50%** and increased the connection speed for distributed storage.
- Replaced manual log verification by designing a system for router CLI verification using Google's **TextFSM** Technology.

Waterloop, Hyperloop Team
Software Engineer — Aug, 2021 - Dec, 2021
- Independently designed a built-in self testing interface used on the hyperloop pods to reduce electrical testing time by **40%**.
- Employed systems design techniques in a command-line tool that allowed engineers to take measurements with high scalability.
- Collaborated with other team members to rigorously test the firmware using tools and technologies including **C++, Python, and Git**.

Strauss Event & Association Management
System Integration Coordinator — Apr, 2021 - Aug, 2021
- Saved the company **$3000**/quarter by designing a script automation for report generation using **SQL**, eliminating temp workers.
- Reduced quarterly report time by one week for HR managers by implementing a **Python** application to process employee data.
- Articulated and expressed research through data mining to examine project management ideologies for national associations.

Projects

PDFNotate, Android PDF Viewer/Editor — Click for GitHub
- An Android application that allows users to undo/redo, annotate, highlight, erase, and save PDF files from an Android device.
- Able to scale and rotate by applying efficient affine matrix concatenation for graphic transformation of annotations and highlights.
- Employs serialization/deserialization techniques to ensure data persists after the application is closed or out of view.

CanDraw, A Desktop Drawing App — Click for GitHub
- A desktop drawing application that allows users to draw complex shapes and graphics on all platforms.
- Developed using **Kotlin** and employs the model-view-controller pattern to dynamically update selected properties.
- Designed a custom encoding and decoding scheme to allow users to save and load drawings with its own file format.

kefancao.com, Numerical Methods Research! — https://kefancao.com
- A portfolio website demonstrating past projects and some numerical methods research I've done! Code in **Python, C++**
- Provides a brief mathematics overview to everyday features such as Google's page rank algorithm and jpeg image compression.
- Implemented multiple scripts demonstrating a minimal loss, 4 to 1, audio compression using Fourier Transforms.

River Deliver, Founder (2020 Summer Company Winner) — Jul 2020 - Aug 2020
- A grocery delivery/errands company, winner of a $3000 Entrepreneurship Fund from a pool of 70 applicants.
- Developed a fully functional ordering web app using **React, Firebase, and Email.js** to attract over 100 users per month. Hello

Education

University of Waterloo, Computer Science (Data Science) **GPA: 93%** **Sept 2020 — May, 2024**
Courseworks: Machine Learning, Database Systems, Operating Systems, Object-Oriented Design - 100%, Advanced Algorithms Design - 100%, Functional Program Design - 96%, Sequential Programs - 99%, Linear Algebra - 97%, Probability - 95%, User Interfaces - 90%

Awards & Honors

2022 Ontario Entrepreneurship Award (**$3,000**); President's Scholarship (**$2,000**); International Experience Award (**$2,500**)