⌨ Bachelor of Computer Science, AI Option
🏛 University of Waterloo (Class of 2020)
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Ben Zhang

(Some also call me "Chuan Tian")

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TL;DR

- Hands-on experience with autonomous vehicle planning and control algorithms from working with WATonomous (a student team in the AutoDrive challenge).
- Received an "Outstanding" (highest) evaluation on University of Waterloo's coop system during all 5 work terms.
- Able to quickly adapt to and thrive in different work environments through experiences at companies of all sizes.
- Practical understanding of embedded systems and real-time programming obtained through building a real-time microkernel from scratch in CS 452 (Real-Time Programming, aka "Trains").

Serious Stuff

Path Planning @ WATonomous
Member—Winter 2020, Manager—Spring 2020

Jan. 2020 - present
Waterloo, Ontario, Canada

- Implemented efficient obstacle avoidance algorithms by generating trajectories in the Frenet frame.
- Experimenting with PID and Model Predictive Control algorithms.
- Facilitating the integration between Perception, Processing and Path Planning stacks.

Software Engineer (Intern) @ Apple Inc.
"He is a self motivated, focused engineer who strives to look at problems in depth..."

May 2019 - Aug. 2019
Cupertino, California

- Implemented network bandwidth prediction infrastructure and bandwidth recording optimizations that improved the time to reach HD and UHD tiers by over 30% in Apple's HTTP Live Streaming video player.
- Created a Media Source Extensions conformance suite to streamline the certification process for external hardware.

Software Engineer (Intern) @ Hive.AI
"Ben is the best intern we have ever had on our team and one of the strongest engineers at the company."

Jan. 2019 - Apr. 2019
San Francisco, California

- Rewrote a data export pipeline and over 50x'd the speed for large exports by making use of idle resources and optimizing caching and concurrency.
- Invented a polygon consensus algorithm using vertex-voting and multi-density clustering techniques. This algorithm landed the company multiple large-scale projects.
- Implemented a Node.JS Streams library with batching, bucketing and concurrency control capabilities.

Frontend Developer (Intern) @ Yahoo!
"...Though this was a lot of additional work, he did it all with a smile."

Jan. 2018 - Apr. 2018
Sunnyvale, California

- Migrated most of Yahoo Mail's settings pages from plain Redux to Yahoo's in-house Action Syncer architecture, which greatly accelerated the development of offline capabilities for the entire Mail platform.
- Designed a system to allow a React component to capture an arbitrary element's scroll event, enabling developers to better implement a consistent and intuitive user experience.
- Implemented a new flow for the vacation response settings page and added the ability to add images, GIFs and emojis to automatic replies. This was featured in a TechCrunch article.

Languages & Frameworks

🏛	⚙	🧪
Experienced	So-so	Novice

🏛 C	🏛 Javascript
🏛 React	🏛 Node.js
⚙ ARM asm	⚙ C++
⚙ Python	⚙ OCaml
⚙ Docker	⚙ PHP
⚙ SQL	⚙ Java
⚙ Bash	🧪 Go
🧪 Nix	🧪 Swift

Not-So-Serious Stuff

Free Sidecar

- Enables Sidecar on Unsupported iPads and Macs running iPadOS 13 and macOS Catalina.
- Received 700+ stars and 30K+ downloads on GitHub.

Vocode (Hackathon Project)

- 100% voice-enabled, Javascript-based text editor. Powered by Nuance's Natural Language Understanding API.
- First place winner of the Nuance API prize at McHacks 2016.

Waterloo Warriors Band (non-techy, ongoing)

- Lead trumpeter
- Deputy Chief Centurion (Vice-president) and Technomancer (Webmaster)