Terence Yu

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Profile

Software engineer with over six years of backend development experience. Expert in designing and developing scalable, high-performance applications serving millions of users and devices. Adept at delivering clean, testable code and collaborating with cross-functional teams to drive project success.

Skills

Languages: Go, JavaScript, C, Java, Python, Objective-C, Swift, C#, Assembler, HTML.

Backend Development: Network Programming, Microservices Architecture, Distributed System, Design Patterns, REST, GraphQL, OAuth, SQL, NoSQL, Cache, Message Queues.

Cloud and DevOps: AWS, GCP, Docker, Kubernetes, CI/CD, Shell Script, Linux, ELK Stack.

Tools and Methodologies: Git, Agile.

Work Experience

Senior Software Engineer   Dec 2017 – Mar 2023
Ecovacs Robotics Co., LTD, China

- Led to build over a dozen backend applications, including NLP systems, IoT platforms, image processing, map building and drawing, and integration with smart speakers like Alexa and Google Assistant.
- Conducted the implementation of key architectural decisions focusing on robust API design and relational modeling, contributing to significant software initiatives and improving team effectiveness through code reviews and technical documentation.
- Created scalable software solutions by leveraging languages and technologies such as Node.js, Go, Container, Microservices, NoSQL, and REST APIs, ensuring high performance and maintainability through clean, efficient code and rigorous code reviews.
- Streamlined software release processes by utilizing tools like Git and Drone/Jenkins/GitHub Actions, ensuring efficient and error-free deployments.
- Collaborated closely with cross-functional teams to identify and prioritize work items, delivering incremental software improvements.
- Mentored a team of 5 junior engineers with training and code review.

iOS Developer   May 2012 – Dec 2017
Ecovacs Robotics Co., LTD, China

- Participated in the definition of mobile application prototypes and the design of UX and UI.
- Built the company's first robot-controlling mobile application from scratch.
- Developed iOS applications with OC and Swift, using Cordova to implement hybrid development.
- Encapsulated IoT communicating SDK, providing abstract interfaces to upper-level developers.

Embedded Software Developer   Mar 2010 – May 2012
Qasida Technology Company, China

- Built driver programs for Scanner's optical sensor and motor, manipulating registers to implement functions according to the chip's spec with C and Assembly language.
- Optimized firmware of Printers.

Work Projects as a Senior Software Engineer at Ecovacs

Machine Behavior Controlling based on Natural Language Processing June 2021 – Apr 2022

- Users needed to control their machines via voice interaction. My responsibilities included the design of the entire software system and the implementation of key codes.
  - Defined flowchart, database schema, Protobuf, and REST API.
  - Implemented a scalable backend architecture using Golang and gRPC to transmit encoded audio streams to third-party NLP platforms like Google Dialog Flow and Azure Speech-to-Text.
  - Decoupled third-party platforms' dependencies by creating modular integrations that can be easily replaced. Leveraged Google Cloud, Kafka, Redis, and S3 for efficient audio data processing and system scalability.
- Reached millions of users, with tens of millions of daily interactions three months after launch.

Machine Clean Logs Generating June 2020 – Dec 2020

- Users experienced serious latency when viewing clean logs on their mobile applications due to CPU-intensive operations running on Node.js based on single-thread and interpreting-running. My duty was to refactor the old project.
  - Rewrote the picture generation program using Golang and OpenCV. Compiled it into the ARM architecture library, which the machine loads as a dynamic library to offload server computation.
  - Employed technologies such as Goroutine, MongoDB, Kafka, and S3 to enhance data management and streaming capabilities.
- Decreased the log generation time by 90%, from 1000 milliseconds to 100 milliseconds, significantly improving performance.

Robot Open Platform and Smart Speaker Integration Mar 2019 – Sept 2019

- Third-party platforms demanded access to our customers' machines through their own applications. My task was to design a general platform and complete most of the coding work.
  - Designed multiple microservices, such as permission control and instruction scheduling, based on the single responsibility principle.
  - Developed a secure website and standardized APIs enabling third-party developers to register applications, set permissions, and execute operations via JWT and REST APIs after administrator approval, using Node.js, VUE, AWS Lambda, MongoDB, Oauth2.0, etc.
  - Implemented smart home applications based on Alexa and Google Home specifications to interact between speakers and customers' machines.
- Handled millions of daily API calls and thousands of concurrent requests per second at peak times.

Education

Conestoga College | Waterloo, ON **2023 – 2024**
Certificate of Web Development (Distinction)

Chongqing University | China **2005 – 2009**
Bachelor of Electronic Information Engineering (Academic Scholarship)