Ou Changkun

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Resume

Stop talking. Just coding.

@changkun
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Education

University of Munich (LMU) — Munich, Germany
Ph.D. Candidate in Media Computer Science. — *Feb. 2019 – Present*

- **Publications**: Link

University of Munich — Munich, Germany
Master of Science in Human-Computer Interaction (HCI); GPA: 1.63 of 1.00, "gut". — *Oct. 2016 – Jan. 2019*

- **Thesis**: *Understanding and Predicting Web Browsing Behavior.*

Southwest University for Nationalities (SWUN) — Chengdu, China
Bachelor of Engineering in Computer Science; Grade: 3.74 of 4.0, "Top 1 Student". — *Sep. 2012 – Jul. 2016*

- **Thesis**: *Designing Alternative Contact-free Control Modalities for Smart Watches.*

Work Experiences

Research Assistant — Munich, Germany
University of Munich — *Aprl. 2018 – Present*

- **Teaching Assistant**: Seminar Advances in Computer Graphics
- **Tutor**: Deep Learning and Artificial Intelligence, notes on GitHub
- **Tutor**: Machine Learning, notes on GitHub.

Vice President of Software Engineering (Remote) — Chengdu, China
LabEx Technology Ltd — *Apr. 2018 – Jan. 2019*

- **Team leader and leading backend development of the oversea product**: I lead and responsible for the product development in backend and frontend. I evolve the existing architecture and split a monolithic backend web application into multiple microservices. The product scales machine cluster from 20 to 200 for active daily users, and its user group increases from 5k to 30k during my incumbency.
- **Multi-cloud automation**: I developed a fully automated multi-cloud resource management microservice in Go. The service defines a general abstraction cross all cloud provider, it automatically manages all user requested resources allocation and releases outdated resources. For instance, a user of the service can allocate new cloud instances for temporal using without noticing the instance was allocated in either AWS, AlibabaCloud, or others. The service supports more than 15 cloud products and integrated 3 cloud providers, being able to support almost unlimited concurrent users and has been used by 10k+ users.
- **Cluster management service**: I developed a microservice in Go that similar to Kubernetes and Docker Swarm. The service manages multiple server clusters, and auto-scaling its cluster size upon request cross multiple cloud providers. Each cluster contains multiple physical machines, and each machine runs many docker containers. The key feature of the service eliminates the difference between the physical machine and the docker container. The runtime of the service includes a system monitor with request prediction algorithm that I invented for efficient auto-scaling with consideration of overcommit ratio and a task scheduler for managing all distributed asynchronous task execution with two-level caching optimization.
- **Remote desktop proxy**: I developed a middleware that provides generic remote desktop proxy in Go and Cgo. The proxy translates VNC/RDP/SSH protocol data, and establish WebSocket connection to a web browser for providing remote desktop GUI.
- **Used tech. stack**: Vue, jQuery, Webpack, Electron; Backend: Go, Cgo, Gin, Beego, gRPC, MySQL, MongoDB, Redis, Hypervisor, Nginx, Docker, Kubernetes, AWS, AlibabaCloud, etc.

Fullstack Engineer (Freelance) — Munich, Germany
Rocketlingo UG — *Nov. 2017 – Mar. 2018*

- **Language Teaching Voice Bot**: I am part of the team in developing a voice bot that provides English learning teaching service. The bot can communicate with its user and improve their English skill by the real-time response. My responsibility is to implement the backend support designed conversations using Amazon Alexa.
- **Speech Recognition Solution & Web Development**: I responsible for the development of speech recognition solution over web technologies, such as using WebSocket for audio streaming, using Google Cloud STT and TTS services for speech recognition and synthesis, etc. The challenging part of using existing speech recognition service for a language learning application is a new language learner sometimes does not produces positive audio samples, and even multilingual. Therefore, I developed many text-based falt tolerances technique for improving the understanding of user speech based on machine learning algorithms.
- **Used Tech. Stack**: Frontend: Angular, Backend: NodeJS, ExpressJS, WebSocket, Python, Flask, MongoDB, Elasticsearch, AWS Serverless, Tensorflow, Numpy, Matplotlib

Skills

- I have good skills in web development and machine learning. and I can use the following languages: **go**; **python**; **javascript**; **c/c++ (for optimization)**; markdown; LaTeX; native Chinese; fluent professional English; elementary German
- **Certificates:** Coursera, Andrew Ng: Deep Learning Specializations, certificates: 1, 2, 3, 4, 5

Open Source Contribution

- **Tensorflow (130k+ stars)**: Contributor
- **Go (60.1k+ stars)**: Contributor
- **etcd (26.1k+ stars)**: Contributor
- **Modern C++ Tutorial (3.9k+ stars)**: I am the author of the book. The book provides the state-of-the-art content towards modern C++, which includes C++11/14/17/20.
- **Go under the hood (800+ stars)**: I am the author of the book. The book discusses Go source code, includes its runtime scheduler, garbage collection, compiler and etc.
- **Official Tensorflow document translation (3.5k+ stars)**: I am the main contributor and project maintainer.
- **Juejin Translation Public Community (22.6k+ stars)**: Major contributor, translated 50+ articles. Main reviewer of AI related articles.
- **Check my GitHub homepage for more projects**: github.com/changkun