Ou Changkun

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Born on October 25th 1993 in Zhijiang/Hunan/China
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Single
Last update: July 25, 2019
Note: colored texts contains clickable URL.

Curriculum Vitae

Science and art, life in between
changkun.de ◉
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Introduction

Changkun Ou is a research assistant at the University of Munich. His research topics are interdisciplinary in computational geometry, imitation learning, and human-computer interaction. In particular, he would like to leverage three-dimensional polygonal mesh representation learning and visual preference elicitation to develop efficient algorithms or industrial tools for 3D modeling and rendering.

Education

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

  ◦ **Publications**: Link

University of Munich   Munich, Germany
Master of Science in Computer Science; GPA: 2.05 in scale of 1.00 (best) to 4.0   *Apr. 2018 – Present*

University of Munich   Munich, Germany
Master of Science in Human-Computer Interaction (HCI); GPA: 1.63 in scale of 1.00 (best)   *Oct. 2016 – Jan. 2019*
to 5.0, "gut".

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

University of Electronic Science and Technology of China (UESTC)   Chengdu, China
Master of Engineering in Software Engineering   *Aug. 2016 – Sep. 2016*

Southwest University for Nationalities (SWUN)   Chengdu, China
Bachelor of Engineering in Computer Science; Grade: 3.74 in scale of 4.00 (best) to 1.0, "Top   *Sep. 2012 – Jul. 2016*
1 Student".

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

First Middle School of Zhijiang   Huaihua, China
Senior Middle School; With university entrance examination (Gaokao)   *Mar. 2010 – Jul. 2012*

Changsha Foreign Language School   Changsha, China
Senior Middle School   *Aug. 2009 – Feb. 2010*

Second Middle School of Zhijiang   Huaihua, China
Junior Middle School   *Sep.2006 – Jul.2009*

Chengnan Primary School of Zhijiang   Huaihua, China
Primary School   *Sep. 2000 – Jul. 2006*

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)

LabEx Technology Ltd

Chengdu, China

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)

Rocketlingo UG

Munich, Germany

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

Shiyanlou

Software Engineer (Intern)

Chengdu, China

Jun. 2016 – Sep. 2016

- ○ **Recommendation System**: Online course recommendation system; Python; MongoDB; Collaborate Filtering
- ○ **Distributed Log System**: Elasticsearch; Logstash; Kibana; Redis
- ○ **Cross Platform Desktop Client**: Electron based development for macOS/Windows/Linux
- ○ **Teaching Meterial Writing**: Modern C++ based teaching meterial writing

Academic Tutor

SWUN Lecture "Human-Computer Interaction"

Chengdu, China

Jul. 2015

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.
- **occamy**: The project implements a modern remote desktop proxy written in Go. It provides web browser GUI for connecting vnc/rdp/ssh servers.
- **gomat**: The package providds cache-aware lock-free tiling optimization matrix utilities in Go.
- **sched**: The package for a high performance reliable task scheduling in Go.
- **Check my GitHub homepage for more projects**: github.com/changkun

Public Activities

- **Presenter** — Glasgow, UK
  at The ACM CHI Conference on Human Factors in Computing Systems — *May. 2019*

- **Student Volunteer** — Chengdu, China
  at Conference Smart Graphics 2015 — *Aug. 2015*

- **Guigu Lab Team Leader** — Chengdu, China
  at SWUN — *Sep. 2014 – Jun. 2015*

- **Mathematical Modeling Association Academic Vice Director** — Chengdu, China
  at SWUN — *Oct. 2012 – Jun. 2014*

Honors & Awards

- **Siemens AILab Hackathon** — Munich, Germany
  2nd Winner — *Nov. 2017*

- **China National Scholarship** — Chengdu, China
  at UESTC — *Sep. 2016*

- **Excellent Bachelor Graduation Thesis Award** — Chengdu, China
  at SWUN — *Jun. 2016*

- **Best University Graduates Student Award** — Chengdu, China
  at Sichuan Province — *Jan. 2016*

- **Outstanding Student Scholarship** — Chengdu, China
  at SWUN — *Nov. 2015*

- **Student Innovative Annual Excellent Project** — Chengdu, China
  at SWUN — *Jun. 2015*

- **Sichuan Province Computer Production Competition** — Chengdu, China
  2nd Award — *May 2015*

- **China National Scholarship** — Chengdu, China
  at SWUN — *Sep. 2014*

- **American Mathematical Contest in Modeling(MCM) 2014** — Chengdu, China
  Meritorious Winner — *Apr. 2014*

Personal Interests

- **Open source contributions**: Writting open source book; Contributing and maintaining open source softwares
- **Video blogging**: Making videos on [YouTube channel](#)
- **Blogging and knowledge sharing**: on https://changkun.de
- **Video gaming**: Sony Playstation and Nintendo Switch player

References

- **Prof. Andreas Butz**: currently supervise for Master studies at LMU Munich Medieninformatik, Munich, Germany
- **Prof. Heinrich Hußmann**: exchange student course "Human-Computer Interaction I" at Southwest University for Nationalities, Chengdu, China
- **Dr. Daniel Buschek**: currently supervise for Master thesis at LMU Munich Medieninformatik, Munich, Germany
- **Malin Eiband**: currently supervise for Master thesis at LMU Munich Medieninformatik, Munich, Germany
- **Florian Lachner**: supervised for individual practical course at LMU Munich Medieninformatik, Munich, Germany
- **Prof. Yaxi Chen**: supervised for bachelor thesis at Southwest University for Nationalities, Chengdu, China
- **Prof. Wei Zhou**: supervised for bachelor thesis at Southwest University for Nationalities, Chengdu, China