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履历

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简介

我是慕尼黑大学人机交互方向的一名博士候选人。我的研究领域结合了机器学习、计算机图形学和用户建模，并使用机器学习方法在交互式人机闭环 3D 图形系统探索和开采人类偏好，并进一步改进他们的决策过程。

教育经历

媒体信息 理学博士 (Dr. rer. nat.) **2019.02 – (预计) 2023.02**

慕尼黑大学 慕尼黑, 德国

- **导师**: *Prof. Dr. Andreas Butz (第一导师), Prof. Dr. Eyke Hüllermeier (第二导师)*

人机交互 科学硕士 (M.Sc.) **2016.10 – 2019.01**

慕尼黑大学; 总成绩: 1.63 (最高 1.0) 介于“优秀”和“好”之间 慕尼黑，德国

- **毕业论文**: “理解并预测网络浏览行为”
- **导师**: *Dr. Daniel Buschek, Dr. Malin Eiband, Prof. Dr. Heinrich Hußmann*

软件工程 工程硕士学生 **2016.08 – 2016.09**

电子科技大学 成都, 中国

计算机科学 工程学士 (B.Eng.) **2012.09 – 2016.07**

西南民族大学; 总成绩: 3.74（最高 4.0），专业排名第 1（专业总人数 154） 成都，中国

- **毕业论文**: “智能手表的非接触式备择交互模式的设计”
- **导师**: *Prof. Dr.* 陈雅茜

西南民族大学成都, 中国 计算机科学工程学士; 绩点: 3.74/4.00, 专业排名第一. 2012.09 – 2016.07

高考 **2000.09-2012.07**

总成绩：512（最高 750，第一/二/三本分数线：520/451/357） 怀化，中国

工作经历

研究员 **2018.04 – 至今**

慕尼黑大学 慕尼黑，德国

- **研究相关**: 研究人机闭环机器学习 3D 图形系统
- **教学相关**: 教授、管理与组织 12 多门课程，指导超过 20 名学生的毕业和研讨班论文
- **研发相关**: 与企业伙伴 WAY digital solutions 共同研发 3D 图形处理引擎，主要负责后端网格处理系统；开发迁移并维护使用超过 17 年的大学 CMS 系统和一个超过 13 年的内部协作系统

后端工程师（远程） **2018.04 – 2019.01**

LabEx Technology Ltd 慕尼黑，德国

- **作为研发负责人**: 负责海外产品的研发工作；主导了产品从单体架构向微服务架构的转型；产品服务端实例（AWS/阿里云）支持从水平扩容 20 到 200 的水平扩容；在职期间用户数从 5k 增长到 30k。
- **作为研发人员**: 使用 Go 开发了一个可扩展的远程桌面代理（支持 WebSocket 到 VNC/RDP/SSH 协议的转译）；开发了一个多云资源管理的微服务（允许跨不同云提供商的服务抽象，支持 AWS 和阿里云，超过 15 种云产品，比如 IAM/EC2/VPC 等），并被超过 10k 用户使用；开发了一个类似于 Kubernetes 的容器和实例混合管理服务
- **技术栈**: 前端: Vue, jQuery, Webpack, Electron; 后端: Go, Cgo, Gin, Beego, gRPC, MySQL, MongoDB, Redis, Hypervisor, Nginx, Docker, Kubernetes, AWS, AlibabaCloud, etc

全栈工程师（兼职） **2017.11 – 2018.05**

Rocketlingo UG 慕尼黑，德国

- **作为研发人员**: 开发了一个语音助手，用过实时语音识别与合成来帮助用户提高语言技能（支持 Web 端和 Alexa 端），并优化了音频流传输以及多语言识别的容错。
- **技术栈**: TypeScript; WebSocket; Angular; Google Cloud STT and TTS; Sklearn; Voice Recognition; 等

软件工程师（实习） **2016.06 – 2016.09**

Shiyanlou 成都，中国

- **作为开发者**: 开发了一个跨平台的桌面客户端；开发了一个内容推荐系统；部署并维护了一个内部数据分析系统。
- **作为内容创作者**: 编写了超过 20 门关于 C++ 的学习教程
- **技术栈**: C++; Python; MongoDB; Collaborate Filtering; Elasticsearch; Logstash; Kibana; Redis; Electron, etc.

开源贡献

一份公开统计显示我已获得超过 18.2k star，并提交过超过 14.2k 次代码，共贡献过超过 30 个开源项目。另一份公开的贡献排名显示我是排名前 200 的德国开发者并是排名前 100 的中国开发者。参见 github.com/changkun 查看更多编写的软件、框架和工具。这里列出了一些开源活动和组织：

- **Go（组织成员）**：Go 语言是一门由来自 Google 的一个开发者团队推出的编程语言，在全球拥有超过两百万开发者。我是该组织的成员之一（共 163 人），目前负责维护 x/mobile 及相关构建器，同时还活跃向运行时及标准库提交贡献
- **fyne（组织成员）**：fyne 是一个开源的 GUI 框架，我是组织的核心成员之一（共 12 人），主要关注在图形和移动端驱动以及性能改进。
- **golang.design（创建者）**：我是组织的创建人，该组织目前发布了超过 25 款软件项目并共计 6 名成员。从 2020 年 9 月至今，已拥有超过 465k 访问次数和超过 66k 历史访问者。
- **Go 夜读（组织成员）**：我是该组织的核心成员。社区每周组织公开技术讲座，目前有 6.35k+ 订阅者，组织了 132 场公开讲座。我贡献了 7 个演讲，它们是观看次数最多的演讲之一。
- **掘金翻译社区（组织成员）**：主要贡献者，将 50 多篇英文文章翻译成中文。
- **其他贡献**: Tensorflow (164+ stars), etcd (39.6k+ stars), etc.

职业技能

Expertise is context- and comparison-dependent. Here states the years of experience in terms of use, also indicates a subjective estimation of the level of expertise (either *intermediate*, *experienced*, or *expert*): 职业技能水平通常取决于领域以及比较对象，因此这里列出了经验的年份和一个主观估计（中级、高级或专家）：

- **领域**：计算机图形学 (3D 渲染和几何处理，3 年本科教学经验，2 年硕士教学经验，使用 Blender/OpenGL/Metal/three.js，高级); 机器学习 (1 年硕士教学经验，Andrew Ng 的深度学习课程证书（ID: QGH8ZVJ6J2L2），使用 Sklearn/Tensorflow/PyTorch 等，高级); 数据分析 (3 年博士研究经验，使用 numpy/seaborn/pandas 等, 高级); *Web* 开发 (2 年工业后端工程研发经验，使用 Go/React 等，高级).
- **语言**：*Go* (超过 5 年使用经验, 专家)；*Python* (超过 4 年使用经验, 高级)；*JavaScript/TypeScript* (超过 5 年使用经验, 高级)；*C/C++* (超过 2 年使用经验, 中级)；*LaTeX* (超过 10 年使用经验, 中级)。我还会说中文（母语）；英语（专业商务流利）；德语（基础）

奖项与荣誉

ACM SIGCHI 特殊表彰 (CHI 20) **2019.11**

优秀审稿 慕尼黑，德国

西门子 AI 实验室黑客马拉松 **2017.11**

二等奖 慕尼黑, 德国

国家奖学金 **2016.09**

电子科技大学 成都, 中国

本科优秀毕业论文 **2016.06**

西南民族大学 成都, 中国

省优秀毕业生 **2016.01**

四川省 成都, 中国

优秀学生奖学金 **2015.11**
西南民族大学 成都, 中国

学生创新年度优秀项目 **2015.06**
西南民族大学 成都, 中国

计算机作品赛 **2015.05**
四川省二等奖 成都, 中国

国家奖学金 **2014.09**
西南民族大学 成都, 中国

美国数学建模竞赛 **2014.04**
一等奖（*Meritorious Winner*） 成都, 中国

教学经历

Lecture Computer Graphics **2020/2021/2022**
As teaching assistant and instructor at LMU Munich. For B.Sc. students, approx. 200 students each year. *Summer*
Authored materials: https://changkun.de/s/teach/cg

Practical Geometry Processing **2020/2021**
As lecturer and instructor at LMU Munich. For M.Sc. students, 6 students each year. *Winter*
Authored materials: https://changkun.de/s/teach/gp

Lecture Information Visualization **2021**
As teaching assistant at LMU Munich. For M.Sc. students, approx. 100 students. *Winter*
Authored materials: https://changkun.de/s/teach/iv

Lecture Online Multimedia **2019**
As teaching assistant and guest speaker at LMU Munich. For M.Sc. students, approx. 180 students. *Winter*
Authored materials: https://changkun.de/s/teach/omm

Seminar Advances in Computer Graphics **2019**
As event organizer and supervisor at LMU Munich. For M.Sc. students, 6 students. *Winter*

Seminar Advanced Media Informatics **2019/2021**
As supervisor at LMU Munich *Summer/Winter*

Lecture Deep Learning and Artificial Intelligence **2018**
As student tutor at LMU Munich. *Winter*
Authored manuscripts: https://changkun.de/s/teach/dl

Lecture Machine Learning **2018**
As student tutor at LMU Munich. *Summer*
Authored manuscripts: https://changkun.de/s/teach/ml

Lecture Human-computer Interaction **2015**
As student tutor at Southwest University for Nationalities. *Summer*

Theses/Seminars Supervision **2020/2021/2022**
As supervisor

- **Bachelor Thesis**: 2022. Shiyi Gou. *Exploring, Assisting, and Improving Human Rationality using Computational Approaches.*
- **Master Thesis**: 2022. Johannes Merkt. *Procedural Modeling with Nodes.*
- **Master Thesis**: 2022. Kehong Deng. *High Dimensional Trajectory Data Interpretation and Visualization.*
- **Bachelor Thesis**: 2022. Nicolas Mogicato. *On-the-fly Mesh Streaming.*
- **Bachelor Thesis**: 2022. Benjamin Sühling. *Mesh Repairing using Deep Networks.*
- **Bachelor Thesis**: 2022. Zihan Kong. *Real Time Ray Tracing using Generative AI.*
- **Bachelor Thesis**: 2022. Gerhard van Nooy. *PAppearance-preserving Mesh Processing in Hierarchical Networks.*
- **Master Thesis**: 2021. Kevin Nsieyanji. *Scheduling, Profiling and Optimizing Hybrid Renderer.*
- **Bachelor Thesis**: 2021. Feng Chen. *Exploiting Human Preferences with Reinforcement Learning Approaches.*
- **Master Seminar**: 2021. Darina Cvetanova. *Recent Advances in Neural Rendering for 3D Applications.*
- **Bachelor Thesis**: 2021. Julius Girbig. *Automated Facial Rig Registration for Motion Capture.* Cosupervision: Prof. Dr. Sylvia Rothe.

- **Bachelor Thesis**: 2021. Oliver Möller. *Web User Interface Optimization from Preferential Ratings.*
- **Bachelor Thesis**: 2021. Christian Schmidt. *Progressive BVH Refinement in Interactive Ray Tracing.*
- **Master Thesis**: 2021. Elena Liebl. *Evaluating Human Expertise in 3D Model Simplification.*
- **Master Thesis**: 2021. Samuel Eiler. *Meshless Neural Rendering.*
- **Master Seminar**: 2020. Maksimilians Verbickis *Understanding and Evaluating Human Preferences in 3D Modeling.*
- **Master Seminar**: 2020. David Dodel, Ofek Lewinsohn. *Geometric Processing in Learning.* Cosupervision: Dennis Dietz.
- **Master Seminar**: 2020. Felix Dietz, Daniel Neumann. *Reinforcement Learning in Physics-based Simulation.* Cosupervision: Dennis Dietz.
- **Master Seminar**: 2020. Cecilia Thümmler. *Human Perception and Preference in 3D Modelling.*

出版物

会议论文集

- **Changkun Ou**, Daniel Buschek, Malin Eiband, Andreas Butz. 2021. *Modeling Web Browsing Behavior across Tabs and Websites with Tracking and Prediction on the Client Side.* arXiv preprint. 10 pages. https://arxiv.org/abs/2103.04694.
- Kai Holländer, Luca Schellenberg, **Changkun Ou**, and Andreas Butz. 2020. *All Fun and Games: Obtaining Critical Pedestrian Behavior Data from an Online Simulation.* In Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '20). ACM, New York, NY, USA, 9 pages. https://doi.org/10.1145/3334480.3382797
- **Changkun Ou**, Yifei Zhan, Yaxi Chen. 2019. *Identifying Malicious Players in GWAP-based Disaster Monitoring Crowdsourcing System.* In the 2nd International Conference on Artificial Intelligence and Big Data (ICAIBD). IEEE. New York, NY, USA, 10 pages. 🎗 **Best Paper Award**. https://doi.org/10.1109/ICAIBD.2019.8836972

书籍

- **Changkun Ou**. 2023. *The Elements of Go: Under the Hood.* To appear in Posts & Telecom Press. https://golang.design/under-the-hood/
- Quancheng Rao, **Changkun Ou**. 2022. *The Handbook of Go Programming Interviews.* China Machine Press. ISBN: 9787111702429. https://golang.design/go-questions
- **Changkun Ou**. 2021. *Modern C++ Tutorial: C++11/14/17/20 On the Fly.* In GitHub. 89 pages. https://changkun.de/modern-cpp

文章

- Yaxi Chen, **Changkun Ou**. 2016. *Combining Touch Biometrics and Motion Sensors for Hand Posture Recognition and User Authentication System.* In Journal of Southwest University for Nationalities (Nature Science Edition). 7 pages. https://doi.org/10.11920/xnmdzk.2016.04.011
- Yaxi Chen, **Changkun Ou**, Zhaoyang Guo. 2014. *Space interactions based on monocular vision and simple gestures.* In Journal of Southwest University for Nationalities (Natural Science Edition). 6 pages. https://doi.org/10.3969/j.issn.1003-4271.2014.06.13

技术报告

- **Changkun Ou**. 2021. *(Generic) Functional Options Pattern.* In the golang.design Research. 10 pages. https://golang.design/research/generic-option.pdf
- **Changkun Ou**. 2021. *The Ultimate Channel Abstraction.* In the golang.design Research. 14 pages. https://golang.design/research/ultimate-channel.pdf
- **Changkun Ou**. 2021. *A Concurrent-safe Centralized Pointer Managing Facility.* In the golang.design Research. 14 pages. https://golang.design/research/cgo-handle.pdf
- **Changkun Ou**. 2021. *Scheduling Function Calls with Zero Allocation.* In the golang.design Research. 17 pages. https://golang.design/research/zero-alloc-call-sched.pdf
- **Changkun Ou**. 2020. *Pointers Might Not be Ideal as Arguments.* In the golang.design Research. 10 pages. https://golang.design/research/pointer-params.pdf
- **Changkun Ou**. 2020. *Eliminating A Source of Measurement Errors in Benchmarks.* In the golang.design Research. 10 pages. https://golang.design/research/bench-time.pdf

其他

- Julius Girbig, **Changkun Ou**, and Sylvia Rothe. 2022. *Generative 3D Animation Pipelines: Automating Facial Retargeting Workflows.* In Workshop on "AI-Generated Characters: Putting Deepfakes to Good Use" of CHI '22: ACM CHI Conference on Human Factors in Computing Systems. New Orleans, LA, USA, 4 pages. https://changkun.de/research/papers/deepfake.pdf
- Jingyi Li, **Changkun Ou**, Yong Ma. 2019. *Cultivation and Incentivization of HCI Research and Community in China: Taxonomy and Social Endorsements.* In Workshop on "HCI in China: Research Agenda, Education Curriculum, Industry Partnership, and Communities Building" of the 2020 CHI Conference on Human Factors in Computing Systems (CHI EA '19). Glasgow, UK, 7 pages. https://changkun.de/research/papers/china.pdf
- **Changkun Ou**. 2018. *An Introduction to Recent Mobile Affective Inference Techniques: Methods, Applications and Challenges.* In Advanced Seminar Media Computer Science, LMU Munich. 9 pages. https://changkun.de/research/papers/emotions.pdf
- Matthias Geiger, **Changkun Ou**, Cedric Quintes. 2017. *WatchOut: A Road Safety Extension for Pedestrians on a Public Windshield Display.* arXiv preprint. 5 pages. https://arxiv.org/abs/1905.05390
- **Changkun Ou**, Mu Huang, Mengxin Shi, Jiang Cheng. 2014. *A Study in Keep-Right-Except-To-Pass Rule.* In the Mathematical Contest in Modeling. 35 pages. **Meritorious Winner** https://changkun.de/research/papers/keepright.pdf

演讲

- Changkun Ou. 2022. *The Decision Maker's Dilemma: or how I stopped struggling with possible choices.* LMU Munich Internal Doctoral Colloquium. Chiemsee, Germany. https://changkun.de/talks/202204/dilemma.pdf
- Changkun Ou. 2022. *Generics in Go 1.18.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/202203/generics118.pdf
- Changkun Ou. 2022. *What is A Rational Community Discussion?* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/202203/rational.pdf
- Changkun Ou. 2021. *Can we compute the free-will?.* LMU Munich Internal Doctoral Colloquium. Venice, Italy. https://changkun.de/talks/202110/polyred6fold.pdf
- Changkun Ou. 2021. *Delicate Dance: Preferences in Interactive Meshing.* LMU Munich Internal Doctoral Colloquium. Virtual Event. https://changkun.de/talks/202103/polyred5star.pdf
- Changkun Ou. 2020. *A Future of Polygon Reduction.* LMU Munich Internal Doctoral Colloquium. Venice, Italy. https://changkun.de/talks/202010/polyred4us.pdf
- Changkun Ou. 2020. *Reliable Benchmarking.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/202003/gobench.pdf
- Changkun Ou. 2020. *Go 2 Generics? A (P)review.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/202003/go2generics.pdf
- Changkun Ou. 2020. *A Study on Go Timer Implementation.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/202001/timer.pdf
- Changkun Ou. 2019. *Technological Outlook.* Lecture Online Multimedia. Munich. https://changkun.de/talks/201912/omm9.pdf
- Changkun Ou. 2019. *Understanding Communicating Sequential Processes.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/201911/csp.pdf
- Changkun Ou. 2019. *Simplicity is complicated: On the balance of performance and knobs.* LMU Munich Internal Doctoral Colloquium. Vienna, Austria. https://changkun.de/talks/201910/knobs.pdf
- Changkun Ou. 2019. *Real-world Go Concurrency Bugs.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/201909/bug.pdf
- Changkun Ou. 2019. *Internals of Channel and Select in Go.* The TalkGo Meetup. Virtual Event. https://changkun.de/talks/201908/channel.pdf
- Changkun Ou. 2019. *Identifying Malicious Players in GWAP-based Disaster Monitoring Crowdsourcing System.* ICAIBD. Chengdu, China. https://changkun.de/talks/201905/gwap.pdf
- Changkun Ou. 2019. *A Glimpse to the Advances of Mesh Representation Learning.* Internal Doctoral Colloquium Spring. Bernried, Germany. https://changkun.de/talks/201904/mesh.pdf
- Changkun Ou. 2019. *Understanding and Predicting User Browsing Behavior.* Masters Defence Presentation. Munich, Germany. https://changkun.de/talks/201901/master.pdf
- Changkun Ou. 2018. *On the development of Quantified UX Metric.* Design Workshop II, LMU Munich. Munich, Germany https://changkun.de/talks/201805/qux.pdf

- Changkun Ou. 2018. *Capsule Network with Routing Mechanism.* Advanced Seminar Deep Learning, LMU Munich. Munich, Germany. https://changkun.de/talks/201712/capsnet1.pdf, https://changkun.de/talks/201803/capsnet2.pdf
- Changkun Ou. 2018. *Understanding Generalization in Deep Learning.* Advanced Seminar Deep Learning, LMU Munich. Munich, Germany. https://changkun.de/talks/201802/generalization.pdf
- Hermann Redich, Patrick Börzel, Isabella Galter, Collin Leiber, Changkun Ou. 2018. *Convolutional Neural Networks from Zero to Hero.* Advanced Seminar Deep Learning, LMU Munich. Munich, Germany. https://changkun.de/talks/201712/cnn.pdf
- Changkun Ou. 2016. *Mathematical Modeling Tutorial.* TouTube. Virtual Events. https://changkun.de/s/playlist/math-modeling

毕业论文

- **Changkun Ou**. 2019. *Understanding and Predicting Web Browsing Behavior.* In the Institute of Computer Science. LMU Munich. 70 pages. **Master Thesis**. https://changkun.de/research/thesis/master.pdf
- **Changkun Ou**. 2016. *Designing Alternative Contact-free Control Modalities for Smart Watches.* In the Institute of Computer Science and Engineering. Southwest University of Nationalities. 47 pages. **Bachelor Thesis**. **Excellent Bachelor Thesis**. https://changkun.de/research/thesis/bachelor.pdf

其他活动

Reviewing **CHI ’20 - CHI’22**
The ACM CHI Conference on Human Factors in Computing Systems

Reviewing **INTERACT’ 2021**
IFIP TC13 International Conference on Human–Computer Interaction

Student volunteer **2020**
The ACM CHI Conference on Human Factors in Computing Systems

Student volunteer **Aug. 2015**
Conference Smart Graphics 2015