Zhaoxun Liu

Lorenz **O**ften **R**epresents the **E**nglish **N**ame for **Z**haoxun

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EDUCATION

University of Toronto — **St. George Campus, Toronto, ON**
Department of Computer Science — On-going
Master of Science in Applied Computing (MScAC) — *Sep. 2023 – Jul. 2025 (Expected)*

- CSC2514H - Human-Computer Interaction
- CSC2611H - Computational Models of Semantic Change
- CSC2521H - Topics in Computer Graphics
- CSC2558H - Topics in Multidisciplinary HCI

Beihang University — **Beijing, CN**
School of Computer Science and Engineering — GPA: 87/100 *with an* Upper Division GPA: 91/100
Bachelor of Engineering in Computer Science and Technology — *Sep. 2019 – Jun. 2023*

SKILLS

Professional:

- **Programming:** C#, Swift, C++, C, Java, Python, JavaScript, SQL, Assembly
- **Dev. Tools:** Unity3D, Git, PyTorch, React Native, React, Yarn, MongoDB, NumPy, Matplotlib, JIRA, Confluence

Language:

- **PTE:** 78 (Reading 87, Listening 72, Speaking 77, Writing 74)
- **TOEFL:** 110 (Reading 30, Listening 30, Speaking 23, Writing 27)
- **GRE:** 324 (Quantitative 169, Verbal 155, Analysis 4.0)

PUBLICATIONS

Hands-Free Is Fine: Gaze-Dominant Object Manipulation in Virtual Reality
Zhaoxun Liu*, Xiaolong Liu, Lili Wang
IEEE International Symposium on Mixed and Augmented Reality (ISMAR), 2023

CrossKeys: Text Entry for Virtual Reality Using a Single Controller via Wrist Rotation
Zhaoxun Liu*, Haowen Zheng, Chenyu Gu, Xiaolong Liu, Lili Wang
IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2023

Temporal Transformer Networks with Self-Supervision for Action Recognition
Yongkang Zhang, Jun Li, Na Jiang, Guoming Wu, Han Zhang, Zhiping Shi, Zhaoxun Liu*, Zizhang Wu
IEEE Internet of Things Journal (IoT), 2023

INDUSTRIAL EXPERIENCE

Ubisoft Entertainment SA — Sep. 2022 – Mar. 2023
Intern Gameplay Programmer — *Chengdu, CN*

- Being responsible for developing, debugging, and optimizing the performance of the interactive and logic system of an AAA-level video game's DLCs (downloadable content) using C# and Unity3D.
- Managing projects with JIRA and Confluence, controlling code versions using Perforce, and complying with Agile developing principles.

ACADEMIC RESEARCH

State Key Laboratory of Virtual Reality Technology and Systems — Researcher (Undergraduate Thesis)
Feb. 2023 – Jun. 2023 — *Beihang University*
Supervised by **Prof. Lili Wang** & Collaborated with **Ph.D. Xiaolong Liu**

- We proposed a fully hands-free object manipulation method based on gaze-dominant interaction, which significantly outperforms the current state-of-the-art gaze-based hands-free object manipulation method.
- We introduced Clover, a Mode Switching Menu, to provide smooth manipulation mode switching, thereby establishing a complete closed-loop manipulation process.

- We designed a user study with the task of block-building, facilitating a quantitative evaluation of the efficiency of the proposed method.

XDiscovery Lab (Dartmouth HCI Lab) — Intern Researcher
May. 2022 – Sep. 2022 — *Dartmouth College*
Supervised by **Prof. Xing-Dong Yang** & Collaborated with **Ph.D. Zheer Xu**

- Devised a novel text entry method that composes scattered keywords into a natural and clear sentence, which may help exaggerate the importance of human factors in studying natural language processing by, in this particular project, observing how people consider keywords.
- Designed and developed a keyword extractor using BERT from Hugging Face.
- Retrained the model based on the prompt-based approach to give three different semantic candidate sentences.
- Developed a web application to enable more people to participate in our user study. Designed and implemented the UI with React framework. Stored data in MongoDB and used ExpressJS as the backend framework.

State Key Laboratory of Virtual Reality Technology and Systems — Researcher
Sep. 2021 – Feb. 2022 — *Beihang University*
Supervised by **Prof. Lili Wang**

- Led the team to devise CrossKeys, a novel and efficient text entry technique for virtual reality (VR) using a single controller via wrist rotation, which unprecedentedly employs the three-dimensional space a virtual environment can provide and outperforms the state-of-the-art method.
- Realized ideas and implemented responsive components, auto-completing prediction algorithm, user interface design, ergonomics-mathematical deduction, and 3D modeling.
- Organized the project and published it to IEEE VR 2023 as the first author.

State Key Laboratory of Software Development Environment — Intern Researcher
Mar. 2021 – Dec. 2021 — *Beihang University*
Supervised by **Prof. Xianglong Liu** & Collaborated with **Ph.D. Jun Li**

- Developed Cross-Attention ReID, a state-of-the-art approach to realizing pedestrians' re-identification based on training with large-scale datasets generated by single-channeled IR cameras and three-channeled RGB cameras.
- Surveyed literature and applied existing theories to code with high performance and robustness.
- Conducted quantitative analysis and results assessment with datasets like SYSU-MM01 and RegDB.

BNRist and School of Software — Intern Researcher
Oct. 2020 – Jan. 2021 — *Tsinghua University*
Supervised by **Prof. Xianglong Liu**

- Refined a CVPR accepted project "Monocular Real-time Full Body Capture with Inter-part Correlations".
- Implemented unsupervised training via differentiable renderers.
- Conducted quantitative analysis with PCA (Principal Component Analysis) and cross-datasets tests with datasets like Basel Face Model and 3DMM Face Model.

SELECTED COURSEWORK

Software Engineering — Score: 98/100 Rank: 3%
School of Computer Science and Engineering — *Apr. 2022 – Jun. 2022*

- Led a team of 7 to design and develop a to-do checklist app, "Okidoki," from sketch, which supports hierarchical and tree-like management of events and plans.
- Defined code architecture and style, regulated code version controlling standards and team managing mechanics.
- Designed and implemented core functions and UI using React Native with Yarn to manage packages.
- Controlled code version with GitLab and managed the team tasks with JIRA and Discord.
- Supervised the development life cycle to comply with Agile developing principles.
- Composed technical documentations.

AWARDS & CERTIFICATES

2023	Award	"Outstanding Undergraduate Thesis" of Beihang University
2021	Scholarship	"Excellent Student Cadres" of Beihang University
2020	The First Prize	The 9th National University Students Arts Performance Competition
2019	Silver Medal	BUAA Basketball Association

LEADERSHIP & EXTRACURRICULAR

Teaching Assistant
"Data Structure", School of Computer Science and Engineering, Beihang University *Feb. 2021 – Jul. 2021*
- Designed coursework assignments and tested the coding platform.
- Solving unexpected problems reported by students when using the coding platform.

Chief Cellist
BUAA Symphony Orchestra *Sep.2019 – Jul.2023*

Point Guard
BUAA Basketball Team *Sep.2019 – Jul.2023*