

# Zhaoxun Liu

Lorenz Often Represents the English Name for Zhaoxun

School of Computer Science and Engineering, Beihang University, Beijing, CN

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## EDUCATION

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:

- **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\*, Haowen Zheng, Chenyu Gu

*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

*IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2023*

### Temporal Transformer Networks with Self-Supervision for Action Recognition

Yongkang Zhang, Jun Li, 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

Sep. 2021 – Feb. 2022

Researcher

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

Mar. 2021 – Dec. 2021

Intern Researcher

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

Oct. 2020 – Jan. 2021

Intern Researcher

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 – Present

### Point Guard

BUAA Basketball Team

Sep.2019 – Present