Zezhe Huang
Malvinas Väg 18, Stockholm, Sweden, 114, 28
(+46) 728440204 zezhehuang@outlook.com https://portfolio.zezheh.com

EDUCATION

2020–Present *KTH Royal Institute of Technology*
Program Master in Interactive Media Technology (Sonic Track)

2015–2019 *ShanghaiTech University*
Program Bachelor in Computer Science and Technology

WORK EXPERIENCE

12/2020–Present *YantuTech Co., Ltd., Shanghai, China*
Position *Co-Founder & Technical Director*

- Designed and built up the fundamental architecture and core services for the whole software ecosystem related to the artificial and simplified scientific illustration.
- Led and mentored the junior team in Software Department to develop the first add-in product for PowerPoint: L.SCIFIG, which is currently under alpha testing.

07/2019–07/2020 *Yo-ke Intelligence Technology Co., Ltd., Shanghai, China*
Position *Research and Development Engineer*

- Developed logical backend for defect detection in Comac airplanes. The backend links automatic hardware, a computer vision algorithm and frontend web modules.
- Researched and developed a data middle platform that handles all the data transfers involved in requests, publishing and subscriptions, and runtime modifications for video fusion projects.
- Developed a video backend that configures the real-time video streams and maintains the garbage collection.

07/2018–03/2019 *ShanghaiTech SIST-1C407 Laboratory, Shanghai, China*
Position *Research Intern*

- Investigated the loss of personal privacy caused by varying audio frequencies of the switched-mode power supply, identifying the possible ways to penetrate the system for security purposes.
- Discovered how the modem and encoding methods used for visible light signals affect the ability of human eyes to perceive those signals. A method, which takes frequency balance into consideration was adopted because its performance with regards to transmission reliability and subjective imperceptibility was superior.
- Developed a reliable method for localizing and determining the orientation of an optical mouse on a non-touch screen via visible light communication.

07/2017–12/2017 *Lanzhong Technology Co. Ltd., Beijing, China*
Position *Software Engineer*

- Developed group coding, which encourages people to form teams and code together. Comprehensive knowledge in system design was required for the development.
- Reviewed interns' pull requests, which gave me insights into code structure and cleanliness.

SKILLS & PROJECTS

All Human-Computer Interaction related projects are available online now, with live demos and source codes.

Perception & Sensing

- Designed a new mapping from tangible interaction to visible, hearable and vibrotactile feedback based on an augmented string instrument that people can strike and pull.
- Conducted experiments on "Emotion and Liking for Music and Images", gave the hypothesis of the relationship among liking, valence and arousal, afterward verified it.
- Developed a top-down shooting game with two input methods: speech commands and keyboards; conducted experiments on how people liked them subjectively and analyzed recorded data from aspects.

Signal Processing

- Developed an innovative HCI channel via visible light communication based on a mouse's optical sensor, with handling inherently limited precision.
- Constructed TCP-like communication based on an OFDM-encoded audio signal, resolving external white noise.

Full-stack Web Development

- Developed a feed module with high concurrency and consistency for an online programming website, using a combination of Django and React.
- Scraped and analyzed online Steam data for users and games. Visualized it in a dynamic view supporting further searching, filtering, and sorting.
- Created a Microsoft Office add-in using VSTO and WPF, and coordinated it with a desktop application based on Electron.

Data Science

- Participated in prediction / feature-extraction projects with big data scraped online or from public datasets, while involving consideration of how human decisions make differences and question of ethics.

Others

- Implemented a Wi-Fi authentication process based on blockchain.
- Cloud services: deployed in cloud servers such as AWS EC2 and Azure virtual machines; used cloud object storage and message service.

PUBLICATIONS & PATENTS & ORAL PRESENTATIONS

- Y Yan, **Z Huang**, F Xudu, Z Yang, "Enabling Tangible Interaction on Non-touch Displays with Optical Mouse Sensor and Visible Light Communication", ACM CHI Conference, 2022.
- Patent CN110187811A: "HCI Method Based on Optical Mouse and Screen Communication," August 30th, 2019.
- OP: "Datatonism - The re-creation of modular synthesis in digital format" at Scenkonstmuseet, Stockholm, June 1st, 2021.

HONOURS & AWARDS

- 09/2017 ~4% Second prize in the China Undergraduate Mathematical Contest in Modelling
- 11/2017 5/38 <13% Ranked in the TOP 5 in the TechCrunch Hackathon in Shanghai