

Haowei Cao

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EDUCATION

Johns Hopkins University, Baltimore, MD, U.S. Present
Master of Science in Electrical and Computer Engineering

University of Houston, Houston, TX, U.S. Aug. 2022-Dec 2023
Was pursuing Ph.D. in Computer Science. Research focus: Image Processing, Computer Vision, Computer Graphics

University of Tennessee-Knoxville, Knoxville, TN, U.S. Aug. 2016-May 2020
Bachelor of Science in Computer Science, Minor in Mathematics, GPA: 3.62/4.0

- Honors: Summa Cum Laude (5 times), Dean's List (6 semesters)

PUBLICATION

Si, Lei, **Haowei Cao**, and Guoning Chen. Hybrid base complex: Extract and visualize structure for hex-dominant meshes. IEEE 17th Pacific Visualization Symposium (Journal Track - TVCG)(under revision), 2024

RESEARCH

Topic-based Indexing, Houston, TX, U.S. Aug. 2022- Dec 2023
VideoPoints.org Project, Instructed by Dr. Jaspal Subhlok

- Incorporate visual elements into the existing indexing system that relies on texts to make it capable of dividing lecture videos into different segments based on topics

Super-resolution Image Technology, Houston, TX, U.S. Spring 2023

- Researched the characteristics of the bicubic interpolation method for image resolution improvement and compared it with popular conventional algorithms and machine learning-based Hybrid Attention Transformer algorithm

Crop Disease Identification Based on Leaf Images, Houston, TX, U.S. Aug. 2022-Dec.2022
AI/ML Data Science Team Project

- Designed and implemented an experimental convolutional neural network to classify images of plant leaves into healthy or diseased categories; increased the model's accuracy in identifying and classifying various crop diseases

Contact Microphone Array, Knoxville, TN, U.S. Jan. 2020-Apr.2020
Audio Filters Developer Team Project

- Developed audio filters using MATLAB to highlight valuable sound and reduce noise

EcoCar Mobility Challenge, Knoxville, TN, U.S. Sep. 2019-May 2020
Software Developer Connected and Automated Vehicle System team(CAVs team)
The 12th U.S. Department of Energy (DOE) Advanced Vehicle Technology Competition (AVTC) series

- Implemented visual remote diagnostic tools using Webviz, Ttyd, and ROS Package to collect, visualize, and modify real-time onboard sensor data of the vehicle

INDIVIDUAL PROJECTS

Visualization of the Spread of COVID-19 Cases in Shanghai Jan. 2022-Aug. 2022
Data Analyst

- Helped residents track the epidemic's progression by creating interactive and easily understandable data visualizations
- Created dynamic maps, heatmaps, and charts using geospatial data and real-time cases to represent the spatial distribution and trends of the epidemic and empower residents to make informed decisions

Operation System Targeting for RISC-V Architecture Aug.2019-Dec.2019
Software Developer

- Implemented MMU, block driver, and file systems for RISC-V Architecture in C++, using QEMU

Student Performance Evaluation Website Jan. 2019-May 2019
Full Stack Developer

- Built a performance evaluation website using HTML, JavaScript, PHP, and MySQL to assess student performance and offer detailed feedback

Productivity Tracking Software Jan.2019-Apr.2019
Software Developer

- Built a cross-platform application using C++, Electron, and JavaScript to analyze the productivity of different users

TA EXPERIENCES

Database Systems Fall 2022, Spring 2023, Summer 2023, Fall 2023

INTERNSHIP

Floauto Control Valve CO., LTD, Shanghai, China Oct. 2020-June 2021
Junior Software Developer

- Participated in integrating 3 distinct systems of 3 departments into a unified ERP system using Python and openERP
- Notably boosted the overall efficiency of the system by 60%, for example, the cross-departmental order processing time reduced from 2 days to a few hours

VOLUNTEER EXPERIENCES

Community Service Office on Epidemic Affairs, Shanghai, China Mar. 2022

Knox Asian Festival, Knoxville, TN, U.S. Aug. 2018

China Culture Day by UTK International House, Knoxville, TN, U.S. Nov. 2017

SKILLS

Computer: C++, C, Python, PHP, JavaScript, ROS, MATLAB, Electron, MySQL, MongoDB, Blender, VTK, PyQt
Language: Native in Mandarin, Proficient in English