

JIAHUI ZHANG

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EDUCATION

University of Virginia
Master of Computer Sciences
GPA: 3.8/4.0;

Charlottesville, VA, USA
08/2023-Present

Portland State University
Bachelor of Sciences in Computer Science
GPA:3.9/4.0; Honors: President's List Quarter Spring 2020/Winter 2021; Dean's list Quarter Winter 2022

Portland, OR, USA
09/2019-12/2022

Changchun University of Technology
Bachelor of Sciences in Computer Science and Information
GPA:3.44/4.0; Honors: Second Prize of Blue Bridge Cup National Software and Information Tech Professional Talent Competition

Changchun, China
09/2018-06/2020

Relevant Courses: Reinforcement Learning, Learning in Robotics; Algorithms&Complexity; Human-Computer Interaction; Machine Learning, Natural Language Processing, 3D Computer Vision; Data Engineering, Intro to Database Management Systems

WORK EXPERIENCE

Research Assistant, Computer Vision Lab, University of Virginia, Charlottesville, VA **06/2024-Present**

- Conducting research in multi-frame 3D scene understanding and geometry-grounded vision, focusing on integrating image, depth, and point cloud representations for unified spatial reasoning.
 - Developed multi-frame 3D reconstruction and camera-pose estimation frameworks based on the Cubify-VGGT architecture, incorporating multi-view alignment, cross-epipolar geometry consistency, and dense geometry fusion across sequential RGB-D inputs.
 - Developed an end-to-end transformer-based framework for 3D point-cloud semantic and instance segmentation, featuring superpoint-guided representation, patch-level data processing, and instance-level matching within a unified OneFormer3D architecture.

Human Resources Database engineer Intern, China Life Insurance Inc (Henan Branch), Zhengzhou, CN **08/2021-10/2021**

- Built and improved automatic pay stub and personnel attendance system and helped to conduct an automatic reports generator
- Managed and input data into the ERP software; Updated recruitment information to the database and maintained the system

ACADEMIC AND RESEARCH EXPERIENCE

Member, Multi-Frame Transformer for Indoor 3D Object Detection and Scene Reconstruction **Mar. 2025 – Present**

- Developed a multi-frame transformer framework that extends Cubify Anything's single-image 3D object detection to multi-view RGB-D sequences on the CA-1M indoor dataset.
 - Designed cross-frame temporal attention module to aggregate features across multiple viewpoints, enhancing 3D bounding box stability and reducing localization jitter in long video sequences

Member, Unified Transformer Framework for 3D Tree Segmentation **Dec. 2024 – Mar. 2025**

- Independently developed a unified transformer-based model for simultaneous semantic and instance segmentation of forest point clouds, adapting the OneFormer3D architecture to forestry applications on the FORInstance dataset.
 - Implemented superpoint pooling, dynamic query selection, and Hungarian-based instance matching to enhance detection of complex tree structures and understory vegetation
 - Built end-to-end data pipeline including point cloud preprocessing, voxelization, superpoint generation, patch-based batching, and comprehensive evaluation metrics (instance-level IoU, F1, PQ scores)

Member, Video Conference and Whiteboard platform project, Portland, OR **Feb. 2022**

- Developed a platform to realize the multi-person real-time whiteboard meeting, including features like video/voice meetings and whiteboard sharing.
 - Built an interactive whiteboard via React enables functions like multi-person drawing, dynamic shapes, and automotive uploading
 - Involved in the progress of designing voice and video conference systems and ensured the recording feature could record conferences and upload them to the database efficiently

Leader, C-Tran Portland public transportation API Project, Portland, OR **April 2022**

- Collected Portland Transportation data from several websites and transformed data formats and input into the database;
- Cleaned and integrated data to Apache Kafka to transform and validate datasets.
- Used the API tools to visualize the C-Tran's route heatmap through Mapbox GL JS.
- Made recommendations to the Portland Public transportation office by analyzing transportation performance's efficiency and effectiveness.

Team Leader, On-Campus food delivery App Project, Changchun, CN

Sept. 2018

- Coordinated project shareholders to develop an on-campus food delivery application in order to convenient students' life and participated in the China "Internet+" college students' innovation and entrepreneurship competition.
- Leveraged GitHub for team coordination action, organized team meetings with shareholders
- Designed the application's function and API and developed a mobile application, mainly the backend in SQL for data storage logic.

EXTRACURRICULAR ACTIVITIES

Life Minister, Chinese Student&Scholars Association (CSSA) at Portland State University, Portland, OR

- Organized transfer students' welcome events, including the housing QA and CSSA new member orientation.
- w Communicated with PSU's foreign students' offices to feed back international student's visa and immigration inquiries
- Helped students book the covid-19 vaccine appointments and assisted in the delivery of disinfecting and sanitizing products.

SKILLS AND OTHERS

Language: Chinese (Native), English(Fluent).

Computer: Proficient in C++, Python, HTML, Intermediate in C, Java, JavaScript; Basic in C#, CSS, ELM

Interests: Basketball, Swimming, Movies, Board games, Latin dance, Clarinet, Keyboard