Xuweiyi Chen

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EDUCATIONAL BACKGROUND

UNIVERSITY OF MICHIGAN	**Ann Arbor, MI**

M.S. in Computer Science and Engineering — *Aug. 2022 – May 2024 (Expected)*

Overall GPA: 3.83/4.0

Concentration: **Embodied AI**

Relevant Courses EECS 595 Natural Language Processing, EECS 598 Deep Reinforcement Learning

UNIVERSITY OF WASHINGTON	**Seattle, WA**

B.S. in Applied and Computational Mathematical Sciences, CUM LAUDE — *Sep. 2018 – June 2022*

Overall GPA: 3.82/4.0

Concentration: **Causal Inference and Natural Language Processing**

Relevant Courses: Data Structures and Algorithm, Database, Networks, Security, Natural Language Processing, Computer Vision, Statistical Machine Learning

Honors: $6000 CoMotion Mary Gates Innovation Scholarship
$3000 Usha and S. Rao Varanassi SAFS Scholarship

INTERNSHIPS

Here Technologies	**Chicago, IL**

Data Engineering Intern, led by Dr. Landis Huffman — *May 2023 – Aug. 2023*

- Explored using a 6-layer MLP system to implicitly model the surface of the earth, which opens the discussion of applying Deep Learning on Geospatial data.
- Implemented five denoising techniques, resulting in a reduction of standard deviation by 17.6% and mean squared error by approximately 22% compared with USGS data, thereby enhancing overall data quality.
- Led the integration of diverse point cloud data sources and applied denoising techniques, enhancing the map's elevation service accuracy by over 7%.

National Oceanic and Atmospheric Administration	**Seattle, WA**

Research Assistant Intern, supervised by Dr. Elizabeth Holmes — *June 2022 – Sep. 2022*

- Participated in research regarding the Peruvian Coastal Upwelling System.
- Developed algorithms using wavelet transform, regression, and spline to detect patterns about upwelling changes in time series.
- Discovered significant upwelling changes in pattern after 2010 which contradicts the famous Bakun Hypothesis.

RESEARCH PROJECTS

3D-LLaMA: A Foundation Model for Embodied AI	**Ann Arbor, MI**

SLED lab in the University of Michigan supervised Prof. Joyce Chai — *May 2023 - present*

- Created large language and vision datasets on top of ScanNet, 3DFront, and structured3D.
- Built a 3D point cloud encoder and explored different ways of expressing 3D data in latent space.
- Constructed an Embodied AI foundation model and showed its potential on downstream tasks.

LLM-Grounder: Open-Vocabulary 3D Visual Grounding with Large Language Model as an Agent.	**Ann Arbor, MI**

SLED lab in the University of Michigan supervised Prof. Joyce Chai — *Jan. 2023 - Aug. 2023*

- Present the first method capable of localizing novel objects in 3D scenes using Neural Radiance Field (NeRF) and Large Language Models (LLMs) through iterative, natural language-based interactions.
- Enables a more human-like interaction with 3D objects in a learned 3D scene representation.
- Evaluated and shown that dynamic grounding outperforms static grounding in terms of accuracy, 3DIoU, and human ratings.

An Automation System for MUSHR Car	**Seattle, WA**

Course Project of CSE 478 Autonomous Robotics — *Jan. 2021 - Apr. 2021*

- Constructed a mathematical model of a robot's dynamics and sensors and assembled three components - localization, planning, and control - to enable a robot to navigate in an environment in a safe, efficient manner.
- Implemented these modules in Python, used ROS for inter-module communications and executed onboard the robot.
- Designed a Bayes filter to estimate the robot's state and environment.
- Derived a controller to robustly track a given path according to stability or optimality criteria.
- Constructed a planning roadmap and applied A* search techniques to compute a dynamically feasible, collision-free path between two locations.

SKILLS

Programming Languages: R, Sage, Julia, MATLAB, Python, Java, HTML, CSS, JavaScript, SQL, Kotlin, C++

Languages: English (proficient), Chinese (proficient)