Yuchen Song

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EDUCATION

University of California, San Diego (UCSD), San Diego, United States

Master of Science   **Sept. 2023 - Jun. 2025 (Expected)**

➢ **Major**: Electrical and Computer Engineering (Intelligent Systems, Robotics & Control track) | GPA: 4.0/4.0

➢ Coursework includes: *Recommender Systems and Web Mining, Principles in Computer Architecture, Statistical Learning, Principles of Artificial Intelligence: Probabilistic Reasoning and Learning*.

South China University of Technology (SCUT), Guangzhou, China

Bachelor of Engineering & Bachelor of Economics   **Sept. 2018 - Jun. 2023**

➢ **Major**: Robotics Engineering | GPA: 90.30/100 or 3.83/4.0 | **Minor**: Finance | GPA: 85.17/100

➢ Coursework includes: *Data Structure, Artificial Intelligence Technology and Applications, Software Engineering, Machine Vision, Data Analysis and Modelling, Theory and Technology of Robotics, Natural Language Processing.*

University of California, Berkeley, Online

Summer Session Visitor   **Jun. 2020 - Aug. 2020**

➢ Department: EECS | Course: *CS61BL Data Structures and Programming Methodology*

COURSE PROJECTS

Recommender System Design   **Sept. 2023 - Dec. 2023**

➢ Conducted in-depth analysis of user-item interactions on Food.com, with data processing and exploratory analysis;

➢ Predicted user recipe preferences and ratings based on similarities in historical interaction data;

➢ Improved performance significantly by implementing a Latent Factor Model, resulting in enhanced rating predictions (MSE: 0.514 -> 0.468), and employing the Bayesian Personalized Recommendation method to predict user recipe choices with remarkable accuracy (Acc: 71.3% -> 89.18%);

➢ Leveraged review text analysis using Bag of Words and TFIDF models to predict ratings based on sentiment analysis, further refining model performance (MSE: 0.468 -> 0.344).

2D Lidar SLAM Simulation [link]   **Feb. 2022 - May 2022**

➢ Collected data from Google Cartographer ROS, and conducted coordinate transformations;

➢ Constructed grid maps (map of point occurrence & map of distance);

➢ Performed pose estimation based on kinematic assumptions, and searched for better pose to replace the older one;

➢ Implemented loop closure optimization, which further reduced the accumulated error by 8%.

RESEARCH PROJECTS

Generalizable Feature Fields for Robot Mobile Manipulation

Advisor: Professor Xiaolong Wang, UCSD   **Sept. 2023 - Dec. 2023**

Research purpose: Learning a generalizable feature fields for world representation based on Neural Randiance Fields (NeRF).

➢ Augment the NeRF model with additional semantic information extracted by CLIP/Dino models.

➢ Executed experiments within Gazebo and Habitat simulators, demonstrating that the incorporation of generalizable feature fields significantly enhanced the success rates of navigating and finding the goal by approximately 8%.

➢ Conduct experiment on Unitree B1 platform in different scenes, with overall success rate over 72.3%.

SKILLS

➢ Coding: Python, Java, C++/C, MATLAB, and R.

➢ Tools: Git, Robot Operating System (ROS), Simulink, and Solidworks.