ALEX VESEL

CS \ AI

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EXPERIENCE

Tesla

Software Engineer

May 2024 – Present Palo Alto, CA

- Computer vision projects ranging from classification to precise 3D human pose estimation and tracking
- Designed and implemented autolabel pipelines using multiple open source models and classical CV techniques
- Trained models and wrote algorithms that were deployed to millions of vehicles worldwide

Tesla

Algorithm Engineering Intern

June 2023 – September 2023 Palo Alto, CA

- Developed inertial sensing algorithms for Tesla vehicles and Tesla Bot (Optimus), including mathematical derivation and implementation
- Computer vision using deep learning models for new vehicle feature
- IMU/GNSS sensor fusion through statistical models

Research Assistant

AI for Remote Sensing

September 2023 – Present Stanford University

- Research project to create 3D exterior and interior models of buildings at scale
- Leverage computer vision techniques and optimization to extract information from floorplans and align to building exteriors modeled using satellite imagery and aerial lidar

PROJECTS

Autonomous Decision Making for Air Taxi Networks

CS239 Advanced Topics in Sequential Decision Making

Early 2024 Stanford University

- Formulated the air taxi network problem (ATNP), which models the multi-agent Markov decision process optimization problem of future air taxi services like Joby
- Provided a solution to the ATNP that decomposes the problem into three sub-problems: agent-passenger assignment, flight level selection, and flight trajectory planning
- Created a simulator of the ATNP grounded in potential vertiport layouts across the Bay Area and New York City.
- Implemented solution using Monte Carlo tree search and custom optimization heuristics and ran experiments comparing to common rideshare matching algorithms
- Paper available on arXiv

Robotic Manipulation at Home via Imitation Learning

Personal Experiments

Early 2025 - Present

- Full stack imitation learning using a MyCobot 280 robot arm. See blog post linked.

EDUCATION

M.S. Computer Science

Stanford University

September 2022 - April 2024

GPA: 4.102 / 4.000

B.S. Electrical Engineering and Computer Sciences

University of Wisconsin - Madison

May 2022

GPA: 3.987 / 4.000

SKILLS

Python | C | C++ | MATLAB

Linux | MacOS | Windows

NumPy | TensorFlow | Keras | PyTorch | Pandas | Google Colab | Visual Studio | Cloud Computing

On-policy RL | Simulation | Vector Database | Semantic Search | LLM Agents

COURSEWORK

- Robotic Manipulation
- Computer Vision
- Artificial Intelligence
- ML under Distribution Shifts
- Operating Systems
- Compilers
- Digital Signal Processing
- Statistics

INTERESTS

- Guitar
- Songwriting
- Weightlifting
- Philosophy
- Psychology
- Cinema