Elia Doehler

New York, NY – ed568@cornell.edu - linkedin.com/in/elia-doehler/ - github.com/primordialls - (669) 292-8944

EDUCATION

Cornell Tech (Cornell University), New York, NY
Master of Engineering in Computer Science | GPA: 4.00 May 2025

Santa Clara University
Bachelor of Science in Mechanical Engineering |Dean's List, **GPA: 3.96** June 2024
Minors: Computer Science, Mathematics, Aerospace Engineering
Involvements: Tau Beta Pi Engineering Honor Society, Pi Tau Sigma Honor Society, Alpha Sigma Nu Honor Society

Relevant Coursework: Probability and Statistics, Numerical Methods, Algorithms, Data Structures, Computer Vision, Applied ML

SKILLS

Programming Languages: C++, C#, Python, MATLAB, Swift, HTML, CSS, JavaScript, TypeScript, Java, SQL, NoSQL, Go, Rust
Technical: REST APIs, Django, Flask, Next.js, Lambda, React, Tailwind, Docker, OpenAPI, Pytorch, Tensorflow, Pandas
Focuses: Functional Programming, Full Stack, iOS, macOS, CI/CD, Agile, Machine Learning, Data Science, NLP, LLMs
Language: Fluent in English and German, conversational Spanish

EXPERIENCE

Santa Clara University Robotics, Research Assistant (Mech. Swimmer Propulsion), Dr. O. Pak's Lab | Santa Clara, CA Sep 2022-Jun 2024

- Integrated electro-mechanical **hardware** and **software** components and developed robot behavior in **C++/Arduino**
- Applied interpersonal skills and problem-solving in a **team-based** cross functional environment using **Jira**
- Executed **iteration** and **optimization** for multiple generations of swimming robot prototypes using lifecycle management
- Conducted **fluid simulations** using StarCCM+ based on set criteria
- Increased robot **propulsion** speed by ~15% over 6 months through optimization techniques including **curve fitting**

Von Ardenne GMBH Mechanical Engineering / Technology and Application Intern | Dresden, Germany Jun 2022-Aug 2022

- Automated CAD process using **C++** script for repeated actions
- Simulated factory workflow using **SimPy**
- Managed project files and data in a **PLM** system (Siemens Teamcenter)
- Navigated **team-based** planning and conception of layout/functionality of components
- Gathered and organized data for new parts from **third-party** manufacturers

PROJECTS

Cai: Car Market Matching System (Flask, React, Azure, CSS, HTML, Javascript, Python, Docker) Sep 2024-Present

- Building **AI-Assisted** web matching system for people looking to purchase car
- Designed and developed an intuitive, user-friendly interface using **React** to support interactive car search and recommendation workflows
- Implemented **responsive design** principles to ensure seamless user experience across devices using **HTML, CSS, and JavaScript**
- Engineered **scalable backend services** using **Flask** to handle search queries, data processing, and API integrations
- Integrated **natural language processing (NLP)** techniques to interpret free-form text inputs and convert them into structured queries
- **Integrated OpenAI API** to process natural language inputs, enabling users to describe car preferences conversationally

AI Tanks (Reinforcement Learning) (C#, Python, Unity) *link* Sep 2024-Dec 2024

- Led the design and execution of a multi-agent reinforcement learning (MARL) **research project**
- Developed a top-down multi-agent 2D tank shooter game in **Unity** from scratch as a reinforcement learning environment
- Directed **experiments** to evaluate the comparative effectiveness of **PPO** and **MA-POCA** in heterogeneous agent teams
- Managed and analyzed the **training process** for both algorithms over 550,000 training steps
- Developed and refined **evaluation frameworks** to assess **algorithmic performance**, determining MA-POCA to have efficiency drawbacks
- Explored diverse **reward structures** fine-tuning reward dynamics to drive optimal agent behavior and coordination
- Collaborated with a **cross-functional team** to integrate findings into a comprehensive **research paper**

EBay ML Competition (Python, Jupyter) Apr 2022-Nov 2022

- Developed **Bi-Directional Recurrent Neural Network (BiLSTM RNN)** for final **Named Entity Recognition (NER)** model after **fine tuning**
- Trained NN on handbag names to attempt to correctly assign parts of the names to categories
- Achieved F1 score of 0.88573 to rank 15th overall

LEADERSHIP

PI TAU SIGMA, Alpha Epsilon Chapter Jun 2023-Jun 2024
President

- Spearheaded engagement in Professional Mechanical Engineering Honor Society
- Increased membership by 63% over previous year by improving community outreach
- Hosted industry speaker talks and events for Mechanical Engineering Community at Santa Clara University