Tristan Rech

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EDUCATION

Bachelor of Science in Computer Science May 2024
Texas State University, San Marcos, Texas
Minor in Applied Mathematics | GPA: 3.76
Honors & Awards: Dean's List 5/5 Semesters and Computer Science Research Excellence Award

TECHNICAL SKILLS

Languages: Experienced in Python, C++, C#, JavaScript, TypeScript, HTML/CSS, and Java
Frameworks & Technologies: Git, Dash, Angular, .NET, REST, GraphQL, and Linux

PROFESSIONAL EXPERIENCE

IMICS Research Lab - Texas State University May 2022–May 2024
Research Assistant | Supervisor: Dr. Vangelis Metsis

- Engaged in the REU Summer Research in Edge Computing, emphasizing self-supervised labeling of sensor-generated time-series data; utilized Python, Pandas, NumPy, and Dash
- Continuously refined and optimized a deep-learning-based application for time-series data visualization, labeling, and modeling, resulting in improved accuracy and usability for seamless data labeling and analysis
- Co-authored and contributed to a research paper on the developed deep-learning application for time-series data, presented at SPACE Workshop, ICASSP 2023 in Rhodes, Greece

DataLab - Texas State University October 2023–February 2024
Machine Learning Researcher | Supervisor: Dr. Jelena Tešić

- Collaborated on an interdisciplinary project utilizing high-resolution aquatic imagery data to enhance understanding of algal diversity and environmental processes
- Conducted advanced preprocessing of algal cell images with computer vision techniques to reduce noise and prepare data for analysis
- Implemented unsupervised clustering with feature extraction using Hu Moments, improving the accuracy of algal cell groupings
- Presented project insights and methodologies as a guest lecturer, sharing findings in a PhD-level Computer Vision class (CS 7323 at Texas State University)

Dell Technologies May–November 2023
Software Engineering Intern & Campus Ambassador

- Initiated GraphQL integration over an existing REST API and implemented it within a critical microservice for Dell's globally recognized enterprise-level sales platform, enhancing data efficiency and response times; utilized C#, .NET Framework, Angular, JavaScript, and Typescript
- The project served as a practical proof of concept, laying the groundwork for broader application within Dell and offering insights to current engineers
- Delivered technical presentations to team members, managers, and Dell executives and reached the finals in the intern hackathon
- Fostered a bridge between academia and industry as Dell campus ambassador at Texas State University, enhancing career readiness and professional growth among peers of all majors

SOFTWARE PROJECTS

SIGNIFY: ASL Learning Tool
Personal Project January–May 2024

- Developed an interactive web tool for ASL fingerspelling learning, integrating template matching and dynamic time warping for robust sign recognition
- Implemented real-time gesture recognition using Google MediaPipe to provide immediate user feedback, built with JavaScript, and styled with Bootstrap 5