José Luiz Vargas de Mendonça

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EDUCATION

University of Michigan – Ann Arbor, MI **Graduation: April 2024**

B.S.E. Aerospace Engineering and B.S.E. Computer Engineering GPA: 3.990/4.0

William J. Branstrom Freshman Prize, Class of 1935 Engineering Scholarship, James B Angell Scholar, College of Engineering Honors, U-M STEAM Research Career Award, and Blue-Ribbon Research

TEAM EXPERIENCE AND INTERNSHIPS

Microsoft Azure, Microsoft Sentinel (Cloud and AI) **Redmond, Washington**

Software Engineer Intern **June 2022 – August 2022**

- Designed and implemented a fault-tolerant incident response tool to help customers respond faster to attacks on their Windows and Linux virtual machines using C#, python, and interfacing with VM Extension and Azure Blob Storage
- Designed one tool front-end using widgets and qgrid for Jupyter notebook for user interaction and a front-end page in the Azure Portal using typescript and React
- Integrated the Kusto Query Language with Event Tracing for windows to allow real-time event ingestion on Sentinel

Amazon Web Services, Global Accelerator **Seattle, Washington**

Software Development Engineer Intern **June 2021 – August 2021**

- Designed and implemented failure tolerant architectures to calculate endpoint health status and TCP reset counts using GO and AWS SDK, interfacing with S3, DynamoDB, IAM and STS services.
- Created API interface to wrap a DynamoDB lock library using mockgen and feature access control to manage traffic in production stage getting used to CI/CD best practices and project pipelines
- Wrote technical documentation, including design diagrams for components and to simplify overall architecture

University of Michigan, Michigan Aeronautical Science Association **Ann Arbor, Michigan**

Avionics Lead **April 2022 – December 2022**

- Managed a team of 15 people working on hardware and software projects: harnessing selection and manufacturing, engine controller bring-up and verification, industrial panel design for ground system, operator GUI, flight computer firmware development, and data acquisition system design
- Started the software team on MASA, managing the database engine development and computer vision for analog pressure gauge reading projects
- Contributed a 6 Degrees of Freedom Stochastic Rocket Trajectory Simulator integrating predicted trajectory with Google Earth imagery and generalizing calculations for diverse rocket shapes

RESEARCH AND TEACHING

University of Michigan, Verified Aerospace Systems Laboratory **Ann Arbor, Michigan**

Research Assistant **January 2021 – Present**

- Wrote an additional pass on the OCaml-based Zelus language compiler to perform refinement type checks
- Created an OCaml interface for the Z3 SMT solver to perform formal proofs during refinement type declaration, refinement function declaration, and refinement function calls
- Received the U-M STEM Research Career Award for this work in programming language design and compilers

University of Michigan, Teaching **Ann Arbor, Michigan**

MATH 216 Differential Equations: Teaching Assistant – Fall 2020, Winter 2021, Fall 2021

AERO 523 Computational Fluid Dynamics: Grade– Computational Fluid Dynamics: Fall 2022

SKILLS

Languages – Portuguese, English, Spanish, Japanese – Advanced German – Basic

Computer Software/Languages – C, C++, C#, Python, GO, Typescript, OCaml, Zelus, React, MATLAB, PowerShell, Bash, AWS, Azure, Windows, Linux, Ansys, SolidWorks, ArcGIS, Earth Engine

Courses – Multivariable Calculus, Differential Equations, Embedded Systems, Compilers, Programming Languages, Computational Fluid Dynamics, Computer Security, Computer Organization