Justin Soberano-Borbonio

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EDUCATION

Iowa State University of Science and Technology   Ames, Iowa
Junior pursuing a Bachelor of Science in Software Engineering   *May 2025*
GPA: 3.63/4.0

EXPERIENCE

NASA — National Aeronautics and Space Administration   Houston, TX
Computer Vision and Machine Learning Intern   *June 2023 - Present*
- Developed a novel image-to-3D machine learning model using **Python, PyTorch, Lightning, PyTorch 3D, and Pillow** to speed up the creation of 3D virtual assets.
- Utilized Meta's large language model **LLaMA 2** and **Stable Diffusion XL** which allowed for complex textual prompts to be translated into 3D virtual assets.
- Implemented a GPU-accelerated depth prediction, deep learning model to estimate the depth information from images using **Global Local Paths Network** models with the **PyTorch** Library.
- Utilized image segmentation techniques to generate multiple synthetic views of an image and stitched them to create 3D models using **Pillow** and **PyTorch3D**, increasing the fidelity of the 3D models by **120%**.

NASA — National Aeronautics and Space Administration   Houston, TX
Extended Reality and Digital Twins Intern   *Aug. 2022 - Dec. 2022*
- Updated and **fine-tuned** an existing model using **Python** and **PyTorch** for **60%** enhanced accuracy in determining mental states in hyper-realistic virtual environments.
- Self-taught **C++** and utilized Unreal Engine to develop a virtual **digital twin** of a lunar habitat using **photogrammetry** for a highly functional and immersive virtual reality simulation.
- **Tested**, **optimized**, and **resolved bugs** in NASA's *Mars XR Operational Support System's* (XOSS) **C**++ code used in training future martian astronauts, improving the efficiency of the support engine by **20%**.
- Implemented data visualization in extravehicular activities in XOSS for comprehensive analysis in telemetry data from procedures, allowing trainee astronauts to make quick and informative decisions.

INVOLVEMENT & LEADERSHIP

Iowa State University, College of Engineering   Marston Hall, Ames, IA
Software Engineering Peer Mentor for Incoming Freshman   *May 2023 — Present*
- **Personally mentor first-generation incoming Freshman,** helping them navigate the transition from high school to college, ensuring their success as a first-year software engineering student.
- **Established meaningful connections with each student**, fostering engagement and creating a supportive learning community.

Iowa State University, Department of Computer Science   Atanasoff Hall, Ames, IA
Object Oriented Programming Undergraduate Teaching Assistant   *Jan. 2023 — May 2023*
- **Facilitated the teaching of 600**+ **students** in a **Java** programming course, ensuring comprehensive understanding of key concepts and best coding practices.
- **Conducted weekly office hours**, providing personalized assistance to students seeking clarification on fundamental coding concepts and object-oriented programming.

TECHNICAL SKILLS

Languages — Java, Javascript, Python, C, C++, HTML/CSS
Frameworks and Libraries — React, Node.js, Bootstrap, Tailwind, Flask, PyTorch, PyTorch 3D, React Spring, ThreeJS
Tools — Visual Studio Code, Xcode, Figma, GitHub, GitLab, MongoDB

PROJECTS

Personal Website — justinsoberano.com
- Inspired by arcades in the 1980s with a modern twist! I **developed** and **designed** a **responsive website** from the ground up using **React**, **ThreeJS**, and **React Spring**, with the aim of showcasing recent achievements and the reach of my abilities. **Check it out!** -> **justinsoberano.com**

ChatGPTwo — Personalized Artificial Intelligence
- Developed a program in **Python** that utilizes **OpenAI's GPT-3.5 Turbo** API. The program allows for creation of a personal artificial intelligence by giving it specified traits.