ALVARO ALTAMIRANO

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EDUCATION

New York University, Tandon School of Engineering, New York, NY　　　　　　　September 2021-May 2025
B.S in Mechanical Engineering, **Minor in Aerospace Engineering and Computer Science**
- GPA: 3.77/4.00
- Relevant Coursework: Mechanics of Materials, Machine Design, Fluid Mechanics, Automatic Control

TECHNICAL SKILLS

CAD: SolidWorks, Onshape, Fusion 360　　　　**Programming:** Python, C++, MATLAB, Machine Learning
Mechanical: 3D Printing, laser cutting, water jet cutting　　**Simulation:** Ansys, SimSolid, SolidWorks Flow

WORK EXPERIENCE

Mechanical Design Engineer　　　　　　　　　　　　　　　　　　　　　　May 2023 – August 2023
The Boring Company – Austin TX
- Designing various systems and sub-systems related to operations such as boring machine parts, support systems, support system equipment, construction vehicles, and tunnel infrastructure using **SolidWorks**
- Upgrade the design of previews boring machine components, utilizing **DFA**, lowering assembly time by 50%
- Implemented **design for manufacturing** principles in order to reduce production errors by 90%
- Implement **hand calculations** and **FEA** to ensure desired safety factor
- Performed **FMEA** to evaluate possible failure points and address them before final design
- Created detailed **2D drawings** with **GD&T** to accurately communicate required dimensions for manufacturing
- Communicate to stockholders current performance and future plans for **Hyperloop**

Undergraduate Research Assistant　　　　　　　　　　　　　　　　　June 2022 – August 2022
NYU Center for Urban Science + Progress (AI4CE Lab)
- Lead the design and manufacture of a soft robot finger with **SolidWorks**, **3D printing**, and **molding** to attain a 95% air-sealed soft body
- Design electro-mechanical test stand with **Raspberry Pi** to evaluate performance and identify design improvements
- Implemented **root cause analysis** and **DFMEA** to address unwanted pressure drop
- Improved fixture design by adding **self-locating fixtures**, eliminating up to 95% air leakages
- Adapt a **machine learning algorithm** to correlate external geometry with internal shape of the soft finger under different deformations achieving 97.5% accuracy
- **Published paper on IEEE** "Toward Zero-Shot Sim-to-Real Transfer Learning for Pneumatic Soft Robot 3D Proprioceptive Sensing"

PROJECTS

Mechanical Technical Leader　　　　　　　　　　　　　　　　　　　　October 2021- Present
NYU Robotics Design Team – NASA Robotic Mining Competition
- Lead mechanical design engineer for a Lunar rover: responsible for **design, source, manufacturing, and testing**
- Create **system requirements** to achieve NASA's competition objectives, asses compliance on later **PDR** and **CDR**
- Design subsystems of the rover, including locomotion, excavation, storage, and deposition on **Onshape**
- Distribute rover subsystems to mechanical sub-leads and guide them through low-level **design decisions**, **material selection**, **manufacturing drawings,** and **manufacturing techniques** to create practical and efficient designs
- Verify and integrate designs into one cohesive rover, achieving full compatibility between all subsystems

Mechanical Lead
VEX Mars Rover, New York University　　　　　　　　　　　　　September 2021-December 2021
- Invented and built a rover using Fusion360 and VEX metal beams, gears, and wheels to be able to clime 40° slopes

Team Lead, Volunteering　　　　　　　　　　　　　　　　　　November 2019-December 2019
Green Lion, Bali, Indonesia
- Proposed an inventory system which accomplished a 20% reduction cost in the construction of public schools

CERTIFICATES/AWARDS

Dean's List	Tandon School of Engineering	2021-2023
Simulation for Finite Element Analysis	SolidWorks	2022
Certified SolidWorks Associate	SolidWorks	2022
Entrepreneurship and Innovation	Columbia University, New York	2018