

Leonardo Piñero-Pérez

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EDUCATION

CARNEGIE MELLON

SCHOOL OF COMPUTER SCIENCE
MS ROBOTICS (ON LEAVE, 36 UNITS)
GEM FULL FELLOW
Aug 2020 - Feb 2021
Cum. GPA: 3.67 / 4.0

UNIV. OF TEXAS ARLINGTON

BS AEROSPACE ENGINEERING
WITH HONORS
Aug 2015 - Aug 2018
Cum. GPA: 3.51 / 4.0

LINKS

Github:// [Leonardo767](#)
LinkedIn:// [leonardo-pinero-perez](#)

SKILLS

LANGUAGES

Over 5000 lines:
Python • MATLAB/Octave
Experienced with:
C++ • C • HTML/CSS • \LaTeX • Dart
Arduino • MySQL • R • JS • Lisp

TOOLS

Data Science:
PyTorch • Keras • TensorFlow
Pandas • NumPy • SciPy
Web:
React • Flask • Uber H3 • Mapbox
Misc.:
Click CLI • Sismic • QGIS

SOFTWARE

Controls:
Simulink • Simscape • Stateflow
Config. Management:
IBM Rational DOORS
Serena Dimensions • Git
Mech. Engineering:
Patran/Nastran (Structural FEM)
Solidworks (CAD) • KISSlicer (3D print)

CONFERENCES

AIAA Aviation Forum ('19)
Presented paper in the Air Traffic and
Operations Management Session
Vertical Flight Society Forum 73 ('17)
Student Volunteer Coordinator as UT
Arlington Chapter President
Duracosys Composite Systems ('16)
Student Volunteer

EXPERIENCE

ARBOR MESH | BOULDER, CO

Founder | Feb 2021 - Present

- Built a last-mile internet provider in rural Colorado, deploying microwave radios, network equipment, and micro-sites to wirelessly distribute a fiber internet connection to low-density neighborhoods
- Led construction of telecommunications infrastructure; taking into account power management, CPU requirements, redundancy management, frequency management, and weatherization
- Coordinated a team consisting of network engineers, fiber providers, installers, sales reps, land owners, and tower owners
- Awarded \$164k infrastructure grant from State of Colorado to build out under-served area in north Summit County
- Configured networking equipment for failover, security, remote management, and bandwidth allocation
- Responsible for major business functions (inventory, finances, sales, contracts)

OUTPOST PLUS | LEHI, UT

Network Engineering Consultant | Aug 2021 - Sep 2021

- Wrote an infrastructure redundancy plan utilizing Kubernetes and cloud hosting for an internet provider
- Helped integrate a prototype client login portal and AAA server for proposed LTE network in Nouakchott, Mauritania

LAWRENCE LIVERMORE NATIONAL LAB | LIVERMORE, CA

Computing Intern | Jun 2021 - Aug 2021

- Wrote python software to simulate relayed communications between friendly and adversarial autonomous agents
- Integrated software to lab's multi-agent reinforcement learning framework

Data Science Intern | May 2020 - Aug 2020

- Modeled human response to cyberattacks on industrial control systems by building a finite state machine interfacing with facility simulation
- Built data pipeline from parsed corpus of ~35k nanomaterial research papers to predict resulting morphology (82% acc) and composition (96%) of experiments
- Attended seminars over Advanced Regression Techniques, Computer Experiment Design, Docker, and LTS Design Patterns

BELL HELICOPTER | ARLINGTON, TX

Control Laws Engineer | Oct 2018 - Feb 2020

- Developed control laws for the **Bell 525** (world's first civilian fly-by-wire helicopter) and the **Future Attack Reconnaissance Aircraft Program** (c. 2020)
- Conducted hardware-in-loop simulation to validate control algorithms
- Part of multidisciplinary team of software, electrical, and aerospace engineers

Engineering Intern | May 2017 - Aug 2017

- Structural analyst on the **MQ-8C Fire Scout** (autonomous helicopter)

UT ARLINGTON | ARLINGTON, TX

Head Teaching Assistant | Jan 2016 - May 2018

- Created homework assignments and keystone projects for 300 engineering students while coordinating grading efforts, substituted for professor in class
- Intro course for Computer-aided Design, Sketching, and Manufacturing

RESEARCH

CMU Biorobotics Lab Grad Student Member | Sep 2020 - Feb 2021

Worked with Tencent to adapt a multi-agent reinforcement learning environment to build 3D structures in an efficient way. Discussed using recurrent and graph neural networks to model learning communications.

UT Arlington Positron Surface Group Collaborator | Sep 2019 - Aug 2020

Developed autoencoders for gamma spectroscopy. My cost-effective code discerned the characteristics of voltage transients measured by more affordable instruments.

Undergrad Researcher | May 2018 – Jul 2018

Derived equations describing pressure and flow transients for non-Newtonian fluids passing through an annular cross-section based on **Dr. David Hullender's** work.

PROJECTS

Return-from-orbit Spaceplane Configurations with Varying Geometry (Thesis)

Honors Undergraduate Thesis - developed conceptual design method to optimize for structural and aerodynamic re-entry performance based on geometric parameters and verified against historical configurations.

Design of Hypersonic Lifting Body Vehicle (Chief Engineer)

Capstone Project - Led technical activities of a 21-member class team to reverse-engineer re-entry vehicle and associated SpaceX launcher.

Perturb & Observe Control Logic for Displacement Pump

Designed a control algorithm to maintain flow resonance in an unknown dynamic system (such as that of a water hammer) and evaluated by MATLAB simulation.

PUBLICATIONS

[1] L. Pinero-Perez. Using genetic algorithm to modify scheduled flights to track regular traffic. *AIAA Aviation Forum*, 2019.