

# Luis M. Pimentel

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## Education

### Georgia Institute of Technology | Atlanta, GA

Bachelor of Science in Computer Engineering, GPA 3.67, Faculty Honors, Dean's List  
Minor in Robotics

August 2017 - Present  
Graduating December 2021

### Georgia Tech Lorraine | Metz, France

August 2019 - December 2019

## Technical Skills

**Programming Languages:** C++, C, Python, MATLAB, Assembly, VHDL, Verilog

**Software:** Linux, Robot Operating System, Gazebo, ROS Navigation, MAVROS, PX4 Autopilot, Arduino, ARM mBed, Quartus II

**Hardware:** Strong soldering, electronics, and prototyping skills; oscilloscope, logic analyzer, multicopter hardware and sensors, autonomous vehicle hardware and sensors

**Communication:** Latex, Git/Wiki documentation, instruction manuals, design proposals, technical reports, poster presentations

**Languages:** Spanish (native, fluent), French (beginner)

## Relevant Coursework

**Completed:** Robotics and Autonomy, Mathematical Foundations of Data Science, Control System Design, Feedback Control Systems, Signals and Systems, Digital Signals Processing, Digital Design, Programming HW/SW Systems, Engineering Software Design

**In progress:** Statistical Machine Learning, Robotics and Perception, Computer Vision

## Experience

### Sandia National Laboratories | Albuquerque, New Mexico

Summer 2019, 2020 - Present

#### R/D Undergraduate Intern | Autonomy For Hypersonics | PI: Dr. Bart van Bloemen Waanders

- Designed a new quadcopter and hexacopter platforms that increased computational capabilities and expanded sensor suite.
- Developing software with ROS and PX4 that is used to perform physical and simulated experiments aiding in the research and development of autonomous algorithms for hypersonic flight vehicles.
- Researching optimization techniques to calibrate multicopter dynamics through large scale inversion, develop sensitivity analysis and optimal control techniques in simulator and physical multicopter environments.

### Georgia Tech Research Institute | Atlanta, Georgia

Summer 2018

#### R/D Undergraduate Intern | Embedded Systems Cyber Security, CIPHER Laboratory

- Designed and developed a custom communication system using four STM32 development boards. This system used a custom communications protocol to transmit/receive messages through radio frequencies.
- Developed software applications to identify security vulnerabilities within the hardware devices and peripherals.

## Research

### The Dream Lab | PI: Dr. Cedric Pradsalier | Georgia Tech Lorraine, Metz, France

Fall 2019

- Wrote software driver for driving an autonomous 1/10<sup>th</sup> scale racecar robot used for control and state estimation research.
- Integrated the software and hardware components for state estimation through an Extended Kalman Filter using an RGBD camera, GPS, and IMU.

### VIP Active Safety for Autonomous and Semi-Autonomous Vehicles

Fall 2017 - Spring 2019

#### Subteam Lead | PI: Dr. Panagiotis Tsiotras | Georgia Institute of Technology, Atlanta, GA

- Managed other students on the team in setting semester goals, tracking progress, and communicating progress to PI.
- Built and maintained the hardware of three AutoRally platforms: high-speed, off-road autonomous 1/5<sup>th</sup> scale racecar robots
- Built ten 1/10<sup>th</sup> scale racecar robots and developed software applications for autonomous navigation using onboard sensors such as LIDAR, Stereo Camera, and Structure depth sensors.

## Extracurricular

### Boxing Club at Georgia Tech

2017 - 2020

- Founder and former President of Georgia Tech's first amateur collegiate boxing team that competes through USA Boxing.

### Georgia Tech RoboJackets

2017 - 2018

- Worked in the software development and integration of sensors for the autonomous RC cars used in racing competitions