

# Paul Sammut

SENIOR ROBOTICS ENGINEER

San Francisco, CA

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## Summary

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Cross-functional robotics engineer that has worked on robotic perception systems for micro-mobility scooters, designed electro-mechanical subsystems for underwater rockets, designed and manufactured consumer electronics hardware and started a robotics company. I was born with a passion for anything with hardware, software, and moving parts and have over a decade of experience building combinations of those 3 things.

## Work Experience

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### Uber

San Francisco, CA

#### SENIOR MECHATRONICS ENGINEER - NEMO (NEWMOBILITY) ROBOTICS

August 2019 - Present

- Wrote embedded firmware in C for safety critical scooter system by designing and implementing a state machine.
- Oversaw a JDM project with a Taiwanese hardware CRM to produce an Android based 360 degree camera system mounted on a micromobility scooter from Concept to Production.
- Handled cross-functional QA on EE design, hardware/mechanical change requests.
- Mentored junior team members and aided them in owning design projects and establishing priorities.
- Identified the need for a hardware tracking database and created an Airtable Base along with a suite of client side software in python and LabVIEW that automatically tracked production gates, firmware/software updates, QA inspections
- Owned a power and digital interface PCB to serve as an electrical bridge between vehicle and camera.
- Designed a 5 discreet antenna solution for Wifi MIMO, GPS, LTE MIMO that was housed in a micromobility scooter.
- Designed a cellular modem solution for a high speed Cat-4 LTE connection on a micromobility vehicle with simplified compliance, time-to-market, and speed as primary design criteria.
- Successfully served as interim team EM of a 4 person mechatronics group during month-long absence of EM.

### Ouster Inc.

San Francisco, CA

#### SOFTWARE ENGINEER - LIDAR SENSORS AND DEPLOYMENTS

June 2019 - August 2019

- Worked on FleetGuide, a LiDAR based sensor suite for trucks to provide drivers with better spatial awareness. [Link](#).
- Wrote automated python provisioning and test code for fleet of ruggedized Linux based LiDAR systems mounted to garbage trucks.
- Solved design issues with deployed sensor systems on fleets of trucks, ranging from water ingress to creating fault handling/reaction systems on ruggedized truck mounted Linux boxes.
- Conducted data analysis for fleet health monitoring to aid in scaling up fleet using the ELK stack, Big Query and Tableau.

### Stocker Freight

New York, NY

#### FOUNDER

2017 - 2018

- Raised seed round and founded Stocker, dedicated to creating an autonomous freight service for cities. [Link](#).
- Built a tech-demo street robot name Primo using ROS capable of operating autonomously in the street. [Link](#).
- Integrated RTAB-Map appearance based SLAM to create PCL maps and localize within them. [Link](#).
- Wrote ROS code integrating stereo cams, mono cams, IMU, and wheel encoders to provide odometry fused with an EKF. [Link](#).
- Created a simulation environment with fully defined URDF and custom sim nodes for HIL and SIL testing in Gazebo

### Robotics Consulting | Rockefeller University

New York, NY

#### ROBOTICS ENGINEER

2016 - 2017

- Acquired and managed a robotics contract to create an autonomous catamaran for dolphin vocalization research. [Link](#).
- Integrated IMU, GPS, Cameras, Motor Controllers, Long Range RF Telemetry and Control, LiFePo4 Battery System, and wrote Mission Control software for autonomous operation.
- Created a publisher-subscribers software framework using the Actor Framework allowing for node-like processes. [Link](#).

## Ramos Alarm Clock | Sammut Tech LLC

Hoboken, NJ

### FOUNDER

2012 - 2016

- Invented a novel alarm clock that forced users out of bed by use of a remote keypad. Took idea from concept to prototype to shipped hardware product. [Link](#).
- Created a successful Kickstarter and pre-order campaign raising \$250K in pre-orders and successfully shipped a consumer electronics hardware product.
- Setup a factory in New Jersey, managed 2 engineers and labor hires to manufacture product.
- Managed capital acquisitions, supply chain, manufacturing plans, inventory forecast schedules, and product strategy.

## Davidson Lab | Stevens Institute of Technology

Hoboken, NJ

### SENIOR RESEARCH ENGINEER

2009 - May 2019

- Managed new high-performance technology projects from the specification phase to testing and validation.
- Conducted fundamental physics research on High Speed Supercavitating Vehicles (underwater rockets).
- Designed thousands of mechanical parts and assemblies in CAD for fabrication utilizing numerous materials, in complex tolerance stackups in electromechanical and pneumatic and subsea applications.
- Created instrumentation and control apparatus utilizing various sensors, pneumatic systems, still and video photography systems interfaced to separate RTOS and standard computers on a custom distributed network.
- Operated, maintained, and upgraded a fleet of UUVs operating in the Hudson River.
- Created HIL testing apparatus utilizing mathematical models to validate system performance.
- Designed electronic wiring systems for power, analog and digital comms and connector solutions.
- Wrote and supported mission critical launch control software for rocket systems.
- Designed and managed the creation of a rocket control surface subsystem with humming bird level dynamic response.

## Institute Machine Shop | Stevens Institute of Technology

Hoboken, NJ

### MACHINE SHOP APPRENTICE

2007 - 2009

- Machined parts based on provided drawings and learned fundamental concepts of Design For Manufacture.

## Publications

2012	<b>Planing-Hull Forces and Moments on a Cylindrical Body in a Cavity</b> , CAV2012	Singapore
2010	<b>Remote Control and Monitoring of MOOS Vehicles through Cellular Modems</b> , MIT MOOS-DAWG	Cambridge, MA
2010	<b>Guidance of a UUV Using a Passive Acoustic Threat Detection System</b> , IEEE, WSS	Carrara, Italy

## Skills

<b>Hardware</b>	PCB Layout (Altium, Eagle), MPLAB IDE, Logic Analyzers, ICE Debuggers, Digital-comms (CAN, Serial, I <sup>2</sup> C, SPI), RF SoCs, uProcs, Power Circuits, Sensors (LiDARs, GNSS, IMUs, AHRS, 2D Cameras, Stereo Cameras, RGBD Cameras), HIL Testing
<b>Mechanical</b>	CAD Solidworks (since 2003), Fusion 360, Finite Element Analysis (FEA), Thermal Analysis, Complex Tolerance Stacks with GT&T, Underwater Systems Design, Precision Actuator Design (Ball screws, Linear Rails), Materials and Coatings
<b>Software</b>	C, C++, Python, ROS, OpenCV, PCL2, Real Time Programming, Linux, CMake, Vim Enthusiast, VCS (Git, SVN), Airtable, Mixed Signal DAQ Programming, LabVIEW, LabVIEW RT, LabVIEW FPGA, cRIO
<b>Personal</b>	Previous US Security Clearance, USA and Maltese Citizen, Avid Rockclimber

## Education

### Stevens Institute of Technology

Hoboken, NJ

BACHELOR OF ENGINEERING IN MECHANICAL ENGINEERING (AEROSPACE CONCENTRATION)

May, 2009

### Stevens Institute of Technology

Hoboken, NJ

MASTER OF ENGINEERING IN MECHANICAL ENGINEERING (ROBOTICS CONCENTRATION)

May, 2014