

# JEAN-GUILLAUME DURAND

Aerospace Engineer, PhD

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Competitive, versatile and determined, I am looking for a full-time position to be actively involved in a collaborative team of a fast paced company. Through my experience, I acquired a solid math and engineering background with strong analytical skills. I developed team work and leadership abilities as well as a good presentation competence to present my findings to diverse audiences. My interest lies mainly in UAV's, modeling and simulation, computer vision, controls and design.

## EDUCATION

### Georgia Institute of Technology

PhD candidate in Aerospace Engineering

MSc in Aerospace Engineering GPA 3.88/4.00

May'14- May'17 (expected)

Aug'12-May'14

### Institut Supérieur de l'Aéronautique et de l'Espace (France)

MSc ISAE – SUPAERO program

Aug'10-May'14

## WORK EXPERIENCE AND RESEARCH

### Amazon Prime Air – Research Scientist Intern

Automation, Sense & Avoid technology

May '16-Aug' 16

### Amazon Prime Air – Research Scientist Intern

Drone delivery program: extended existing computer vision framework for modularity.

May '15-Aug' 15

### Army Research Lab (ARL) - Research Assistant at the ASDL for Dr. Dimitri Mavris

Micro Autonomous Systems Research (MAST) modular re-configurable system integration and prototyping. Optimizing the design of UAV's to be 3D printed.

Aug '14-Present

### AIRBUS - Research Assistant at ASDL for Dr. Dimitri Mavris

Multi mission modular UAV design using sizing methods and multi domains optimization. Performed CAD design, parametric design optimization, aerodynamic modeling, nonlinear controls, sensor modeling, hardware in the loop real time simulations and actual manufacturing and testing of the UAV.

Jan'13-Aug '14

### Army Research Office (ARO) - Research Assistant at the Center for Robotics and Intelligent Machines (RIM) and the Borg Lab research group for Dr. Frank Dellaert

Improving Parallel Tracking and Mapping (PTAM) with Fusion of IMU and Vision. Adapted the algorithm using ROS robotic framework, created a full GUI module for the ground station. Performed debugging and deployed actual testing on a robotic car.

Aug'12-Jan'13

### Vice-President of the ISAE Micro Air Vehicle Club

Led MAVs design, club's communication, finance, partnerships and organization (15 people). Managed several teams (computer vision, AI, integration, design...) to prepare international competitions.

Aug'10-Aug'12

## PROJECTS

### Georgia Tech - Student Aerospace Challenge

Preliminary design of a suborbital aircraft. Developed a performance sizing and synthesis simulation tool in Matlab.

Sep'12-May'13

### Georgia Tech - Environmentally Conscious and Economically viable Technologies (EConEcT)

Designed an integrated design solution with landing gear fairing and assessed its impacts on aircraft performance using CFD in Ansys. Developed an agent based model and a discrete event model to study high level impacts.

Oct'12-May'13

### Ray Tracing algorithm

Implemented a JAVA ray-tracing code for quadratic shapes using thorough conceptual design.

Sep'11-Jun'12

### ISAE - Characterization of a MAV's environment

Built a visually realistic simulation and used it to develop navigation and AI algorithms using computer vision and SLAM.

Sep'11-Jun'12

### Parrot - A.R. Drone Endurance optimization

Carried out bench testing of the propulsion group and a parametric trade study optimization.

Dec'10-Jun'11

## COMPUTER SKILLS

### Programming

Matlab (Simulink), Java  
Mathematica, C++, C, VBA

### Optimization software

JMP, ModelCenter,  
Ansys Framework

### Operating Systems

Windows, UNIX

### CAD software

Solidworks, Blender, CATIA

## ACHIEVEMENTS

### Awards

Aerospace Student Challenge:  
Dassault Prize

2nd IMAV Indoor Pylon  
Challenge (International Micro  
Air Vehicles Competition)

Airbus Fly Your Ideas  
competition: round 2

### Community

Active member of the  
Association of Young Comorian  
Entrepreneurs, a business  
incubator to promote  
entrepreneurship for young  
Comorians. Leading a project to  
implement solar panels in  
remote villages of Comoros.

### Sports

Basketball (Supaero team)  
Volleyball  
Mountaineering  
Bodybuilding

## LANGUAGES

French (Native)

English (Fluent)

Spanish (Proficient)

## PUBLICATIONS

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A Design Optimization Technique for Multi-Robot Systems	AIAA SciTech 2017
A Methodology to Evaluate Tradeoffs between Individual Architecture Development and Numerality to Achieve Group Performance in Robotics Swarms	AIAA Aviation 2016
An integrated and parametric environment for generation, selection and evaluation of new architectures at a conceptual level: application to the Environmental Control System	AIAA SciTech 2014
Preliminary Design of a New Hybrid and Technology Innovative Suborbital Vehicle for Space Tourism	AIAA Aviation 2014
Design of an Improved Green Taxiing System Focused around the Landing Gear	AIAA Aviation 2014