

# JACK ARNIS AGOLLI

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Available: May 2018

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**CAREER GOAL:** Seeking a full time position to utilize my experiences as an engineer to further the advancement of space flight technologies, human space exploration, and humanity's understanding of the universe,.

## RELEVANT EXPERIENCE

### National Aeronautics and Space Administration – Marshall Space Flight Center

Huntsville, AL

Spring Intern

January 2018 – May 2018

- Mission design studies and trajectory analysis for nuclear electric and nuclear thermal propulsion transits to Mars.

### National Aeronautics and Space Administration – Goddard Space Flight Center

Greenbelt, MD

Summer Intern

June 2017 – August 2017

- Optomechanical design in Creo and Simulate to design a nulling coronagraphy test bed and segmented aperture telescope in support of the LUNAR mission and technology maturation for coronagraphs and direct imaging of Earth-like exoplanets.

### Spike Aerospace, Inc.

Boston, MA

Aerospace Engineer

May 2016 – Present

- Worked in various areas of design in order to help create the world's first supersonic business jet. This included managing and hiring other interns, parametric CAD modeling in Unigraphics, performing trade studies and aircraft sizing, and CFD analysis in Star-CCM+.

### Space, Aerial, and Nuclear Networks Division – United States Air Force Materiel Command

Lexington, MA

Software Engineering Intern

June 2016 – August 2016

- Directed a team of four that designed a critical C++ application on a Linux (Fedora) machine that decoded Link 16 radio messages from a German NATO exercise. I also used HTML and JavaScript to develop and test dynamic a web-based application that displayed the decoded tactical aircraft logistical information in Cesium in a web browser.

## PROJECT EXPERIENCE

### Directed Research, WPI

August 2017 – December 2017

- Trajectory analysis using Copernicus for a nanosatellite mission on a low thrust (EP) interplanetary transfer.

### CubeSat Design and Analysis: Attitude Control Subsystem Testing

Worcester, MA

Major Qualifying Project

September 2016 – March 2017

- Worked in a team of 3 to develop an attitude determination and control subsystem (ADCS) for WPI's CubeSat, in collaboration with the NASA Goddard Space Flight Center and the Space Research Centre in Poland. Software used: STK, Matlab
- Designed and simulated attitude control policies and designed and built a near-frictionless, three degrees of freedom test bed for hardware-in-the-loop testing.

### Phobos Reconnaissance Orbiter Mission

Worcester, MA

Senior Capstone Design Project

January 2017 – March 2017

- Prepared a preliminary design of a spacecraft to perform a high resolution imaging mission of Mars' largest moon Phobos, and modeled all spacecraft subsystems.

### Investigation into Reliability: London Underground Jubilee Line

London, England

Interactive Qualifying Project

January 2017 – May 2017

- Worked in a team of four to provide recommendations on the future modernization of the Jubilee Line, particularly related to stopping accuracy and platform edge doors, to the general manager of the Jubilee Line.

## SKILLS AND ABILITIES

**Technical Abilities:** Trajectory analysis, spacecraft mission design, propulsion system design, optical telescope design, supersonic/subsonic aircraft design, attitude control system design, robotics, rocket engine nozzle design, CAD modeling/drawing, programming, wind tunnel testing, thermodynamics, aerodynamics

**Languages:** C++, C, PHP, JavaScript, HTML, CSS

**Software Experience:** STK, Copernicus, Solidworks, NX Unigraphics, PTC Creo/Windchill, Matlab, Star-CCM+, Linux/Unix, Vim, LabVIEW, OpenVSP, XFLR5

## EDUCATION

### Worcester Polytechnic Institute

Worcester, MA

Bachelor of Science in Aerospace Engineering;

September 2014 – December 2017

Astronautical Engineering Concentration

- **Relevant Coursework:** Calculus, Physics, Mechanics, Thermodynamics, Statics/Stress, Space Environments, Astronautics, Aerodynamics, 'Guidance, Navigation, and Communication (GNC)', Spacecraft Dynamics/Control, Aerospace Structures, Structural Dynamics, Incompressible and Compressible Fluids, Rocket Propulsion, Spacecraft and Mission Design
- **Academics:** 3.8/4.0 GPA
- **Honors and Activities:** WPI Presidential Scholarship, Mary and Theodore Ellis Scholarship, WPI Dean's List, Albanian Student Association – Vice President, AIAA, WPI Soccer Club Team, WPI Water Polo Club Team

### Advanced Math and Science Academy Charter School

Marlborough, MA

- **Academics:** 4.3/4.0 GPA, 2200 SAT I, 800 SAT II – Mathematics

September 2010 - June 2014

## ADDITIONAL INFORMATION

**Interests and Hobbies:** Classical guitar player (10 years), pianist (2 years), reading classic novels and reading astrophysics papers/textbooks, watching classical and sci-fi films, keeping up with space exploration news, soccer, cooking Italian food

**Volunteering/Other:** Eisenberg Assisted Living activities manager, Kumon Math and Reading Center (tutoring students for four years)

**Spoken Languages:** Albanian (fluent), Italian (proficient)