

# Mohsen Alowayed

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## Education

### Massachusetts Institute of Technology

*Master of Science in Mechanical Engineering GPA 5.0/5.0*  
*Bachelor of Science in Mechanical Engineering GPA 4.9/5.0*

**Cambridge, MA**

Sep 2018 - Aug 2019  
Sep 2014 - Jun 2018

## Professional Experience

### SpaceX

#### *Structures Engineer II - Starship Second Stage*

- Designed, analyzed, built, and tested the second stage aft heatshield
- Lead two interns and a build engineer to execute on hardware release and qualification testing for the heatshield
- Analyzed, built, and integrated the Raptor vacuum engine structural attachment
- Worked on vehicle-level acceptance testing of the Ship 20 thrust structure including load case definition, instrumentation, structural analysis, and data review
- Mentored new hires in technical work and professional development

**Hawthorne, CA**

Jan 2021 - Present

#### *Structures Engineer - Falcon 9 First Stage*

- Executed life cycle testing of the first stage thrust structure (Octaweb) to demonstrate 10x flight reusability. Work included fracture analysis, static structural analysis, load case definition, test hardware debugging, and data review
- Executed life cycle testing of composite aerocovers to demonstrate 10x flight reusability
- Performed fracture analysis on several secondary structures parts and documented in Final Verification Review package in support of NASA crew missions
- Provided engineering support on build and refurbishment issues

**Hawthorne, CA**

Nov 2019 - Dec 2021

#### *Associate Engineer - Falcon 9 First Stage Structures*

- Designed and analyzed composite and metallic aerocovers
- Wrote and executed qualification tests on flight aerocovers and access doors
- Addressed issues with production and reusability of flown hardware

**Hawthorne, CA**

Jun - Aug 2018

### Bell Helicopter

#### *Engineering Intern in the Manufacture Research and Development Laboratory*

- Programmed a vision system for automatic defect detection using liquid penetrant inspection
- Built carbon fiber reference standards for ultrasonic equipment calibration
- Designed and preformed experiments on composite hole drilling using an industrial robot

**Fort Worth, TX**

Jun - Aug 2016

### MIT Vortical Flow Research Laboratory

#### *Undergraduate Researcher - Development of autonomous swarming buoys for monitoring dynamic ocean environments*

- Designed and implemented an electronic system for motor control and to enable capabilities such as GPS, Wi-Fi communication, and local SD card storage
- Programmed Arduino for testing movement proficiency and implemented a PID controller

**Cambridge, MA**

Jun - Aug 2015

## Additional Experience

### Personal Projects

*View a sample portfolio of personal projects at [alowayed.com](http://alowayed.com)*

## Skills

### Language

Fluent in English and Arabic

### Design

NX, SolidWorks, CATIA, Abaqus Femap, Mastercam, Blender

### Building

Mill, Lathe, Composite layup, 3D Printing, Woodworking, Blacksmithing, Glassblowing

### Programming

Python, Java, C#, C++, C, HTML, CSS, Javascript, MATLAB

### Media

Photoshop, Illustrator, Premiere, InDesign