


# EMILY WILLIAMS

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## EDUCATION

### University of Illinois at Urbana-Champaign

*Bachelor of Science in Aerospace Engineering · Minor in Atmospheric Sciences*

Dean's List, James Scholar, Tau Beta Pi, Alpha Omega Epsilon, Order of Omega

May 2021

GPA: 3.95/4.00

## WORK EXPERIENCE

### The Boeing Company, El Segundo, CA (Remote)

Summer 2020

*Space Electronics Design Automation Intern*

- Optimizing component object model (COM) automation process by interfacing between integrated printed circuit board (iPCB) layout application and ANSYS for thermal analysis using Visual Basic Script (VBS)
- Developing new baseline workflow model for streamlining database curation of thermal parameters for product design
- Hired through the Engineering Accelerated Hiring Initiative (EAHI) program

### GE Aviation, Cincinnati, OH

Summer 2018

*Product Operations Intern*

- Reallocated 300+ GENx 1B booster fan blades in spares inventory to usable parts kitted for application on the assembly line, expediting the development of 20 affected engines
- Implemented program for tracking forecasted commits across multiple product lines to proactively address maintenance repair and overhaul (MRO) issues with executive team

### University of Illinois Grainger College of Engineering, Champaign, IL

Fall 2017 - Present

*Instructor & Course Developer*

- Average rate of 4.8/5 on Instructor & Course Evaluation System (ICES) form and ranked "Outstanding" on "List of Teachers Ranked as Excellent By Their Students" by the Center for Innovation in Teaching and Learning for ENG 100
- Creating and teaching new engineering course AE 199 SAT: Intro to CubeSats to introduce 25+ underclassmen to satellite development research opportunities on campus
- Improving and teaching ENG 177: GFX Leadership Scholars to introduce 25+ first-year students to leadership opportunities on campus

## RESEARCH EXPERIENCE

### Numerics and Unsteady Flows Group (NUF)

Summer 2020 - Present

*Advisor: Andres Goza, PhD*

- Developing robust and efficient computational tools for simulating and analyzing fluid-structure interaction systems
- Working towards optimizing current time stepping algorithm into a higher order method using immersed boundary smooth extension

### Center for Hypersonics & Entry Systems Studies (CHESS)

Spring 2020 - Present

*Advisor: Marco Panesi, PhD*

- Using TensorFlow neural networks to fit 3D potential energy surfaces to acquire the reaction rates of the hydrogen cyanide (HCN) system
- Fitting the kinetics data of hypersonic reentry flight using sparse regression techniques to obtain an expression for the state-to-state dissociation rates in terms of the position of the centrifugal barrier
- Modeling the reactions that take place in the flow by selecting a large basis set of functions that include exponentials and polynomials motivated by derivations from transition state theory

### Laboratory for Advanced Space Systems at Illinois (LASSI)

Fall 2017 - Present

*Advisor: Michael Lembeck, PhD*

- Managed and directed software development progress for Steven R. Nagel Mission Operations Center
- Oversaw and monitored all satellite mission progress across entire laboratory program through collaboration with mission coordinators and subteam leads
- Implemented robust scheduling system adaptable for tracking mission deliverables and responsibilities for five active satellite programs

## CAMPUS INVOLVEMENT

### Women in Aerospace

Fall 2017 - Present

*President (2019 - 2021), Secretary (2018 - 2019), External Representative (2017 - 2018)*

- Collaborated with Aerospace Undergraduate Advisory Board and other aerospace organizations to execute social mixers and other department-wide fundraising events while overseeing 5 standing committees
- Planned and executed week-long professional development trips and conferences for executive board members and membership of 40+

### Satellite Development Organization

Fall 2017 - Present

*Senior Advisor (2020 - 2021), President (2019 - 2020)*

- Designed and developed new website and other media to rebrand and market towards recruiting new talent to work in the Laboratory for Advanced Space Systems at Illinois
- Introduced various interest groups with mentors to help facilitate learning and development of technical skills for membership of 300+

## SKILLS

MATLAB, Python, HTML, CSS, Siemens NX, PTC Creo, SQL, LaTeX, VBScript, Mentor Graphics, Design Automation, MS Office, MS Project/Visio