

# EMILY J. SHEETZ

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## EDUCATION

**Bachelor of Arts, Mathematics and Computer Science Majors**  
**Spanish Minor**

**May 2018**

Monmouth College, Monmouth, IL  
GPA: **3.969** / 4.0

## HONORS

Honors Program Member  
Blue Key Honor Society Secretary  
Alpha Lambda Delta Member

## RESEARCH

**Analog and Digital Sound Synthesis**

**Summer 2017**

Monmouth College, Monmouth, IL

- Introduced to software for high quality sound recording and visualizing sound waves
- Explored FM synthesis with non-sinusoidal carrier waves using the LittleBits Synth Kit
- Presented research to faculty and students

**Research Experience for Undergraduates on Smart UAVs**

**Summer 2017**

Auburn University, Auburn, AL

- Researched visual homing on unmanned aerial vehicles (UAVs)
- Introduced to Python, *OpenCV*, and machine learning implementations
- Implemented simulation framework for testing techniques in MATLAB
- Worked independently to research, design simulation framework, and find solutions

**CAT Vehicle Research Experience for Undergraduates**

**Summer 2016**

University of Arizona, Tucson, AZ

- Used system identification to develop a mathematical model for internal vehicle dynamics
- Introduced to autonomous systems, control theory, and model predictive control
- Worked independently to research, analyze data, troubleshoot, and solve problems
- Operated the Cognitive Autonomous Test (CAT) Vehicle for project testing

**High Speed Imagery and Mathematical Modeling**

**August 2015**

Monmouth College, Monmouth, IL

- Conducted experiments for introduction into the mathematics of chaos theory
- Supervised students during Summer Opportunity for Intellectual Activity projects
- Presented research to faculty, students, and community members

**Research in Mathematics, Particle Image Velocimetry**

**2014 – 2015**

Monmouth College, Monmouth, IL

- Investigated water flow around airfoils at angles of attack using particle image velocimetry
- Operated lab equipment including lasers, flow cell, and Phantom v9.1 high speed camera
- Created poster presentation and presented research to students and faculty members

**High Speed Imagery and Mathematical Modeling**

**August 2014**

Monmouth College, Monmouth, IL

- Focused on experiment design, data analysis, and introduction to mathematical modeling
- Collaborated with mathematics majors to conduct experiments
- Gained experience designing experiments and using *Mathematica* and MATLAB

## WORK EXPERIENCE

### Computer Science Tutor

August 2016 – Present

Monmouth College, Monmouth, IL

- Utilize knowledge of programming practices and languages C++ and Java
- Lead group discussions of material and explain concepts one-on-one
- Encourage students to think about problems and solutions from new perspectives

### Writing Tutor

May 2016 – Present

Monmouth College, Monmouth, IL

- Provide direction to students at any point in the writing process
- Utilize nondirective tutoring methods to help students to improve their writing process
- Develop relationships with students through encouragement and validation of their efforts

### Speech Assistant

August 2015 – Present

Monmouth College, Monmouth, IL

- Assist students at any point in the process of drafting or delivering a speech
- Observe speeches, evaluate speakers' needs, and provide feedback on speeches
- Develop relationships with students by encouraging them and supporting their efforts

### Research Assistant

May 2017 – July 2017

Auburn University, Auburn, AL

- Worked under the supervision of Dr. Saad Biaz and Dr. Richard Chapman
- Collaborated with peers to research, develop approach to problem, and write code
- Wrote academic paper, created poster, and presented research

### Research Assistant

June 2016 – August 2016

University of Arizona, Tucson, AZ

- Worked under the supervision of Dr. Jonathan Sprinkle and doctoral students
- Collaborated with peers to research, write MATLAB scripts, and design experiments
- Experienced writing academic papers and presenting research

## SOFTWARE AND PROGRAMMING LANGUAGES

Java

C++

MATLAB

Python

*Mathematica*

## LEADERSHIP AND INVOLVEMENT

### Wind Ensemble

August 2014 – Present

- Flute Section Leader (August 2016 – Present)
- President (August 2017 – Present)
- Secretary (August 2016 – May 2016)

### Marching Band

August 2014 – Present

- Flute Section Leader (August 2015 – Present)