

# GRAYSON K. SCHAER

*Permanent Address: 478 Tazewood Road, Metamora, Illinois 61548*

*Current Address: 2600 West John Street, Champaign, Illinois 61820*

*Contact Information: (309) 258-0101; grayson.schaer@gmail.com*

## ACADEMIC HISTORY

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### **University of Illinois at Urbana-Champaign**

*Urbana-Champaign, Il.*

**BACHELOR OF SCIENCE, AEROSPACE ENGINEERING**

*August 2015 – December 2019*

- **GRADUATING TECHNICAL GPA:** 3.98 / 4.00
- **GRADUATING CUMULATIVE GPA:** 3.98 / 4.00

### **University of Illinois at Urbana-Champaign**

*Urbana-Champaign, Il.*

**PhD, AEROSPACE ENGINEERING**

*August 2020 – Current*

- **FOCUS:** Controls and Dynamical Systems
- **ADVISOR:** Dr. Tim Bretl

## PROFESSIONAL EXPERIENCE

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### **United Technologies Aerospace Systems:**

*Rockford, Il.*

**THERMAL ENGINEERING CO-OP**

*August 2017 – December 2017*

- Designed thermal models of aircraft electric systems using the Ansys software, IcepaK
- Performed thermal analysis of electronic and mechanical components using IcepaK
- Aided in test procedure design for the investigation of a failed component
- Developed Excel machine loss input and conversion tool to optimize workflow
- Developed Excel tool that maximized performance of vertically oriented fins

### **Beckman Institute for Advanced Science and Technology:**

*Urbana-Champaign, Il.*

**UNDERGRADUATE RESEARCHER**

*January 2018 – January 2020*

- Developed novel method for fabricating monodisperse double emulsions for microcapsule templating
- Designed and conducted experiments to validate new method
- Developed imaging and image processing procedures to minimize experimental error and uncertainty
- Used brightfield and scanning electron microscopy for material characterization
- Designed and conducted experiments to show applications of new method
- Presented findings in peer reviewed journal article, poster, extended abstract, and PowerPoint formats

### **Energy Driven Technologies, LLC:**

*Urbana-Champaign, Il.*

**RESEARCH ENGINEER**

*January 2020 – August 2020*

- Developed FDA compliant (61 FR 52654, ISO 14971:2019) design controls infrastructure
- Authored proposals for medical, plasma fusion, and automotive devices
- Designed and conducted ion beam irradiation experiments in UHV environments
- Developed simulation and test software (C++, MATLAB) for irradiation experimentation

## PUBLICATIONS

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- D. R. Thakare, G. K. Schaer, Y. Mostafa and N. R. Sottos, "Fabrication of pH-Responsive Monodisperse Microcapsules Using Interfacial Tension of Immiscible Phases," J. Soft Matter, 13 April 2020.

## PRESENTATIONS AND CONFERENCES

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- G. Schaer, D. R. Thakare and N. R. Sottos. "Development of a Facile Experimental Technique for Fabrication of Double Emulsions." ISUR Poster Exposition. Urbana-Champaign, 2019.
- G. Schaer, D. R. Thakare and N. R. Sottos. "Fabrication of Monodisperse Double Emulsions for Microcapsule Templating" UROP Research Exposition. Urbana-Champaign, 2019.

## PROGRAMS AND ACTIVITIES

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### **Illinois Scholar Undergraduate Researcher: (ISUR)**

<https://isur.engineering.illinois.edu/>

*Urbana-Champaign, IL  
Fall 2018 – December 2019*

- Attended seminars to improve laboratory and scientific communication skills
- Developed technique to create monodisperse microcapsules from double emulsion templates
- Presented findings at ISUR poster conference

### **Undergraduate Researcher Opportunities Program: (UROP)**

<https://isgc.aerospace.illinois.edu/urop/>

*Urbana-Champaign, IL  
May 2019 – August 2019*

- Attended seminars to improve laboratory and scientific communication skills
- Developed method to fabricate photodegradable transient polymer microcapsules
- Designed and conducted experiments to characterize degradation of photodegradable microcapsules
- Presented findings in extended abstract and PowerPoint formats at UROP conference

## HONORS AND AWARDS

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- **University of Illinois at Urbana-Champaign University Honors (Bronze Tablet Recipient):** Awarded April 2020 for achieving a graduating rank in the top three percent of the students in their class.
- **Best Entrepreneurial Leadership in a Startup:** Presented by University of Illinois at Urbana-Champaign Research Park in July 2020 for excellence in work conducted at Energy Driven Technologies, LLC.
- **University of Illinois at Urbana-Champaign Grainger College of Engineering Dean's List:** Fall 2015, Spring 2016, Fall 2016, Spring 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019.

## QUALIFICATIONS AND SKILLS

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- **Programming Languages:** C++, MATLAB, Python
- **Computer Aided Modeling and Finite Element Analysis:** Autodesk Inventor, NX, Ansys Icepak
- **Laboratory Equipment:** Fatigue Frame, Bright Field and Fluorescence Microscopy, Scanning Electron Microscopy, Rotary Evaporator, Glovebox, Bath Sonicator, Vortex Mixer, Homogenizer
- **Other Software:** Microsoft Office Suite, Ocular, ImageJ, Fiji