

# Alex J. Mazursky

Ph.D. Student at the University of Chicago  
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## EDUCATION

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### **University of Chicago** **2019 – Present**

Ph.D. in Computer Science

Advisor: Prof. Pedro Lopes, Human Computer Integration Lab

Research Interest: Haptic devices, wearables, HCI meets materials science

### **Miami University** **2019**

M.S. in Mechanical Engineering

Advisor: Prof. Jeong-Hoi Koo, Smart Materials Lab

Thesis: Application of Electrorheological Fluid for Conveying Realistic Haptic Feedback in Touch Interfaces

*Supported by a Graduate Fellowship from NASA and the Ohio Space Grant Consortium*

### **Miami University** **2018**

B.S. in Mechanical Engineering, Energy Co-Major

GPA: 3.92/4.00

*Summa Cum Laude, Departmental and University Honors*

## RESEARCH EXPERIENCE

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### **University of Chicago, Department of Computer Science** Aug 2019 – Present *Graduate Research Assistant* *Chicago, IL*

- ▷ Creating novel interactions through wearable haptic devices for new user experiences

### **Miami University, Department of Mechanical Engineering** Feb 2016 – May 2019 *Under/Graduate Research Assistant* *Oxford, OH*

- ▷ Designed, fabricated and tested a combined kinesthetic-tactile interface based on electrorheological fluids

### **Korea Advanced Institute of Science and Technology (KAIST)** May 2018 – Aug 2018 *Visiting Student Researcher* *Daejeon, South Korea*

- ▷ Prototyped a “multicopter-to-mothership” drone docking mechanism, supervised by Prof. Jae-Hung Han in the Smart Systems and Structures Lab: Design and Control

### **Miami University, Department of Mechanical Engineering** Aug 2017 – Dec 2017 *Undergraduate Research Assistant* *Oxford, OH*

- ▷ Built multiphysics models of a new induction heating coil geometry for thin sheet workpieces, in collaboration with the Korea Institute of Machinery and Materials (KIMM)

### **Korea Advanced Institute of Science and Technology (KAIST)** Jun 2017 – Jul 2017 *Senior Capstone Research* *Daejeon, South Korea*

- ▷ Designed applications for a “multi-sensorial” (combined visual, audio and haptic feedback) tablet, in collaboration with the Korea Research Institute of Standards and Science (KRISS)

- ▷ Performed energy policy and engineering research with a focus on university's efforts toward efficiency in buildings under the supervision of Dr. Sarah Dumyahn

## JOURNAL PUBLICATIONS

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- [J.2] Design, modeling, and evaluation of a slim haptic actuator based on electrorheological fluid  
**Alex Mazursky**, Jeong-Hoi Koo, Tae-Heon Yang  
*Journal of Intelligent Material Systems and Structures, SI: Selected papers from ICAST 2018 (2019).*
- [J.1] A compact and compliant mixed mode electrorheological actuator for generating a wide range of haptic sensations  
**Alex Mazursky**, Tae-Heon Yang, Jeong-Hoi Koo  
*Smart Materials and Structures 2020.*
- In preparation:*
- [J.X] Electrorheological haptic actuator with embedded sensing for closed-loop sensation control  
**Alex Mazursky**, Tae-Heon Yang, Sam-Yong Woo, Jeong-Hoi Koo  
*To be submitted to Journal of Intelligent Material Systems and Structures.*

## CONFERENCE PROCEEDINGS

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- [C.4] Incorporating Sensing Capability in an Electrorheological Haptic Module  
**Alex Mazursky**, Tae-Heon Yang, Sam-Yong Woo, Jeong-Hoi Koo  
*In Proc. International Conference on Adaptive Structures and Technologies (ICAST) 2019.*
- [C.3] Multiphysics Modeling and Parametric Analysis of an Inductor for Heating Thin Sheet Materials  
**Alex Mazursky**, Hee-Chang Park, Sung-Hyuk Song, Jeong-Hoi Koo  
*In Proc. ASME International Mechanical Engineering Congress & Exposition (IMECE) 2018.*
- [C.2] Application of Electro-Rheological Fluids for Conveying Realistic Haptic Feedback  
**Alex Mazursky**, Jeong-Hoi Koo, Tae-Heon Yang  
*In Proc. International Conference on Adaptive Structures and Technologies (ICAST) 2018.*
- [C.1] Experimental Evaluation of a Miniature Haptic Actuator based on Electrorheological Fluids  
**Alex Mazursky**, Tae-Heon Yang, Jeong-Hoi Koo  
*In Proc. SPIE Smart Structures and Nondestructive Evaluation 2018.*

## HONORS AND AWARDS

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- Center for Data and Computing (CDAC) Doctoral Fellowship**, University of Chicago, 2019-2020  
\$2,500 travel grant for "Health Monitoring Based on Wearable Sweat Sensors," a joint project with Pedro Lopes and Sihong Wang
- Biochips Travel Grant**, University of Colorado Boulder, 2019  
\$500 travel award to attend Biochips Summer School
- Daniels Fellowship**, University of Chicago, 2019-2020  
\$8,000 award for select incoming doctoral students

**NASA/OSGC Fellowship**, Ohio Space Grant Consortium, 2018-2019

\$16,000 award and tuition waiver for “Design of a miniature actuator based on electrorheological fluid for conveying realistic haptic feedback”

**Provost’s Student Academic Achievement Award**, Miami University, Fall 2017

Given to select students from the university who have demonstrated outstanding academic excellence and have made notable contributions to their department. 10-15 awards issued per year across all undergraduates.

**NASA/OSGC Undergraduate STEM Scholarship**, Ohio Space Grant Consortium, 2017-2018

\$3,500 award for “Modeling and Simulation of an Electrorheological Fluid-based Haptic Device”

**Undergraduate Research Award**, Miami University, Spring 2017

\$720 grant for “Design and Performance Evaluation of a Miniature Haptic Actuator based on Electrorheological Fluids”

**NASA/OSGC Undergraduate STEM Scholarship**, Ohio Space Grant Consortium, 2016-2017

\$3,500 award for “Application of Electrorheological Fluids for Haptic Feedback”

**Redhawk Excellence Scholarship**, Miami University, 2014-2018

Scholarship award based on academic achievement and rigor

**President’s List**, MU College of Engineering and Computing, Spring 2016, 2017, 2018

Semester GPA = 4.00/4.00

**Dean’s List**, MU College of Engineering and Computing, Fall 2014, 2015, 2016, 2017, Spring 2015

Semester GPA ≥ 3.70/4.00

**Start the Trend Challenge: First Place**, MU College of Engineering and Computing, 2015

Innovation competition during Engineers Week with focus on contemporary issues in STEM education

**TEACHING AND MENTORING**

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**Teaching Assistant**

CMSC 23220: Inventing, Engineering & Understanding Interactive Devices, UChicago Spring 2020

CMSC 20300: Introduction to Human Computer Interaction, University of Chicago Fall 2019

MME 311: Dynamic Modeling of Mechanical Systems, Miami University Aug 2016 – May 2017

**Modern Materials Technology**, University of Chicago

2019 – Present

Volunteer throughout the school year to co-teach a materials science course at Lindblom Math and Science Academy

Develop lecture slides, handouts and hands-on labs and demos covering matsci fundamentals

**Mentoring During M.S. at Miami University**

Jake Zafar, *Haptics and Flexible Sensors*

Adam Coon, *Magnetorheological Fluid-based Actuators*

Sae-Hyun Sone, *Modeling of Induction Heating*

**SERVICE AND MEMBERSHIPS**

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**Reviewing**

ACM DIS 2020

ACM Augmented Human 2020

ACM CHI 2020  
IEEE World Haptics 2019

#### **Student Volunteer**

ACM CHI 2020  
ACM UIST 2019

#### **Miami University**

Undergraduate Research Forum Session Moderator 2019  
Dept. of MechE Faculty Search Committee (Student Member) 2018 – 2019  
Discover the Sciences Presenter 2017, 2018

#### **Professional Memberships**

American Society of Mechanical Engineers (ASME)  
Tau Beta Pi: The Engineering Honor Society  
The Processing Foundation (Student Member)

### **PROFESSIONAL DEVELOPMENT ACTIVITIES**

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**Biochips Summer School**, University of Colorado Boulder, 2019  
Five-day course on digital microfluidics research led by Prof. Mirela Alistar at the ATLAS Institute

**Leadership in the Real World**, Miami University, 2015  
Semester-long course on leadership hosted by the Lockheed Martin Leadership Institute

### **EXTRACURRICULAR LEADERSHIP**

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Alpha Epsilon Pi: New Member Educator, Secretary, Community Advancement Chair 2015 – 2018  
Miami University Eco Representatives 2015 – 2016

### **WORK EXPERIENCE**

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**Bruner Corporation** May 2016 – Aug 2016  
*Energy Engineering Intern* Columbus, OH

- ▶ Implemented energy savings solutions and improved company workflows through scripting and automation

**HBK Engineering** May 2015 – Aug 2015  
*Engineering Intern* Chicago, IL

- ▶ Performed topographic land survey, settlement monitoring and construction layout using robotic total stations and GPS for utilities industry in the Chicago Metropolitan Area

### **REFERENCES**

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1. **Pedro Lopes** Asst. Professor, University of Chicago
2. **Jeong-Hoi Koo** Professor, Miami University
3. **Tae-Heon Yang** Professor, Korea National University of Transportation
4. **Timothy Cameron** Professor, Miami University
5. **Amit Shukla** Professor, Miami University