

Alex J. Mazursky

Ph.D. Student at the University of Chicago
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EDUCATION

University of Chicago

2019 – Present

Ph.D. in Computer Science

Advisor: Prof. Pedro Lopes, Human Computer Integration Lab

Research Interests: 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

University of Chicago, Department of Computer Science

Aug 2019 – Present

Graduate Research Assistant

Chicago, IL

- ▷ Creating novel interaction through haptics (sense of touch) in virtual reality, touchscreen interaction, and wearable computing 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)

Miami University, Institute for the Environment and Sustainability

Jan 2016 – May 2016

Undergraduate Research Assistant

Oxford, OH

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

JOURNAL PUBLICATIONS

- [J.1] 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).
In preparation:
- [J.X] A compact and compliant mixed mode electrorheological actuator for generating a wide range of haptic sensations
Alex Mazursky, Tae-Heon Yang, Jeong-Hoi Koo
To be submitted to Smart Materials and Structures.
- [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

- [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, to appear.
- [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

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 at Miami.

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 \geq 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

Teaching Assistant at University of Chicago

CMSC 20300: Introduction to Human-Computer Interaction

Fall 2019

Teaching Assistant at Miami University

MME 311: Dynamic Modeling of Mechanical Systems

Fall 2016, Spring 2017

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

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)

Reviewing

IEEE World Haptics

2019

Student Volunteer

ACM UIST

2019

PROFESSIONAL DEVELOPMENT ACTIVITIES

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

Alpha Epsilon Pi: New Member Educator, Secretary, Community Advancement Chair

2015 – 2018

Miami University Eco Representatives

2015 – 2016

WORK EXPERIENCE

Bruner Corporation

Energy Engineering Intern

May 2016 – Aug 2016

Columbus, OH

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

HBK Engineering

Engineering Intern

May 2015 – Aug 2015

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. Jeong-Hoi Koo | Professor, Miami University |
| 2. Tae-Heon Yang | Professor, Korea National University of Transportation |
| 3. Timothy Cameron | Professor, Miami University |
| 4. Amit Shukla | Professor, Miami University |