

# Alex Hughes

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## EDUCATION

### Ph.D. in Materials Science, Colorado School of Mines

Expected 2028

In progress

GPA: 4.0/4.0

Passed qualifying exam

PI: Annalise Maughan

### B.S. in Materials Science and Engineering, Michigan State University

May 2021

GPA: 4.0/4.0

Manufacturing concentration | Honors College | Deans List

Capstone: Failure Analysis of Torsionally Loaded Doorknob Cylinder

Advisor: Dr. Martin A. Crimp

### B.A. in Russian Language, Michigan State University

Honors College | Deans List

Capstone: History of Homophobia in Russia

Advisor: Dr. Jason Merrill

## RESEARCH EXPERIENCE

### PhD Candidate, Colorado School of Mines

Aug 2023-Present

Department of Chemistry, Materials Science Program

- Performing solid state synthesis, PXRD analysis, and electrochemical testing on sodium ion conductors with a focus on battery electrolyte materials.
- Modifying existing and created personal Python codes to process data and create figures.

### Professorial Assistant, Michigan State University

Sep. 2017 – May 2019

Department of Chemical Engineering and Materials Science

- Conducted EBSD, backscatter electron, and secondary electron microscopy by using a Tescan MIRA3 to examine Nimonic 75, pure nickel, and pure titanium.

## PAPERS AND PRESENTATIONS

- Presentation: Alloying and Conductivity of the  $\text{NaMCl}_4$  system ( $\text{M}=\text{Al}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Ga}^{3+}$ ) at Colorado Center for Advanced Ceramics Conference, Aug 2025
- Poster: “Alloying and Conductivity of the  $\text{NaMCl}_4$  system ( $\text{M}=\text{Al}^{3+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Ga}^{3+}$ )” at Graduate Research and Discovery Symposium @ MINES, Apr 2025
- Poster: “Substitution of aliovalent and differently coordinated ions and their effect on sodium ion conductivity in  $\text{NaAlCl}_4$ ” at Colorado Center for Advanced Ceramics Conference, Aug 2024.
- Poster: “Substitution of aliovalent and differently coordinated ions and their effect on sodium conductivity in  $\text{NaAlCl}_4$  and  $\text{Na}_2\text{ZrCl}_6$ ” at Graduate Research And Discovery Symposium @ MINES, Apr 2024.

- Poster: “Size effect of creep in Nimonic 75” at Mid-Michigan Symposium for Undergraduate Research, Jul. 2018.
- Presentation: “Depth of Slip Transfer in Titanium” at University Undergraduate Research and Arts Forum, Apr. 2018.
- Presentation: “Absolute and Relative Pitch: Factors into the Origin and Acquisition” at IMSAloquium, Apr. 2016.

## GRANTS AND AWARDS

- CoorsTek Fellowship
- MSU Board of Trustees Award for Academic Excellence (2021)
  - For maintaining a 4.0 GPA for the first 7 semesters at MSU
- Dean’s List
  - 8 Semesters
- Magna Cum Laude

## LEADERSHIP EXPERIENCE

- |                                     |                       |
|-------------------------------------|-----------------------|
| <b>President</b>                    | Jun. 2019 – Jun. 2020 |
| <b>Treasurer</b>                    | Jun. 2018 – Jun. 2019 |
| Michigan State University Crew Club | Aug. 2017 – May 2021  |
- Led meetings of the 6-person executive board, hired coaches, scheduled races, coordinated driving and sleeping arrangements, lead warm-up and cool down, and created and maintained a budget of \$60,000.

## OTHER WORK EXPERIENCE

- |  |                       |
|--|-----------------------|
| <b>New Models Launch Engineer</b> , Ford Motor Company | Nov. 2021 – Jun. 2023 |
| On contract through Kelly Services                     | Nov. 2021 – Nov. 2022 |
| Salary   | Nov. 2022 – Jun. 2023 |
- Managed containment of arising issues, managed functional and quality testing for pre-production vehicles to delivery timeline, and compiled and presented critical launch metrics to launch leadership using Microsoft Excel and internal Ford software.

## LANGUAGES

- English – fluent, native
- Russian – high intermediate
  - Critical Language Scholarship Advanced Russian Language and Area Studies Program (Summer 2020, canceled due to COVID)
    - Nationally competitive study abroad program funded by U.S. Department of State
  - Middlebury Language Schools (Summer 2019)

- Nationally competitive intensive language study summer semester
- Exchange between Illinois Mathematics and Science Academy and Zhores Alferov Physical Technical High School (Springs 2016-2017)
  - High school student exchange; In Russia Spring 2017

## **MISCELLANIOUS**

- Ranked top 5% in the world for healers, Final Fantasy XIV
- Peak single fight: 11<sup>th</sup> in the world, peak for full raiding tier: 311<sup>th</sup> in the world