

# Robert B. Renfrow

## CONTACT INFORMATION

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Graduate Student Research Assistant  
Nuclear Engineering and Radiological Sciences  
University of Michigan  
2028 Phoenix Memorial Laboratory  
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## EDUCATION

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**University of Michigan** – Ann Arbor, MI 2021 to present  
*Ph.D., Nuclear Engineering and Radiological Sciences*

**Lipscomb University** – Nashville, TN 2017 to 2021  
*B.S., Mechanical Engineering, Applied Mathematics Minor*  
Honors: *summa cum laude*

## ENGINEERING EXPERIENCE

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**Graduate Student Research Assistant** 2021 to present  
*Nuclear Engineering Department, Materials Cluster* *University of Michigan*

- Investigating radiation effects in nuclear materials for fusion and advanced reactor applications
- Analyzing material microstructure using transmission electron microscopy
- Utilizing scanning electron microscopy and focused ion beam instrumentation to prepare TEM samples
- Conducting ion beam modification experiments to simulate radiation effects in materials

**Policy Research Fellow** Summer 2021  
*Washington Internships for Students of Engineering* *American Nuclear Society*

- Researched and identified contemporary policy issues within advanced nuclear power industry
- Developed solutions for identified policy issues via collaboration with policy and industry experts
- Formulated implementation strategies for enacting suggested policies

**Instrumentation Laboratory Assistant** Winter 2021  
*Instrumentation and Measurement Laboratory* *Raymond B. Jones College of Engineering*

- Designed experiments to test specific metrological science concepts applicable to mechanical engineering
- Constructed apparatuses from semi-raw materials
- Honed hands-on bench skills like soldering, electronics, experimental design, and data acquisition

**Humanitarian Engineering** 2019 to 2021  
*Peugeot Center for Engineering Service in Developing Communities* *Raymond B. Jones College of Engineering*

- Collaborated with communities to develop adequate solutions to improve baseline quality of living
- Co-designed solar-powered water system that provides water to 1000 people in Los Limones, Guatemala (2021)
- Co-developed solar-powered well pump system for Blessings Hospital in Malawi, Africa (2020)
- Surveyed for solar-power system to power community school in San Esteban, Honduras (2019)

## AWARDS, HONORS, RECOGNITION

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- Ziya Ackasu Fellowship Recipient – University of Michigan, 2021
- Most Outstanding Mechanical Engineering Student – Lipscomb University, 2021
- Outstanding Undergraduate Poster Presentation – Student Scholars Symposium, 2021
- Lipscomb Engineering Honor's Society (Tau Beta Pi section pending), 2020 to 2021
- Lipscomb College of Engineering Liaison to Student Government, 2020 to 2021
- Member – Lipscomb Academic Integrity Committee, 2019-2021
- Presidential Scholar – Lipscomb University, 2017

## SCIENTIFIC OUTPUT

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- [1] R.B. Renfrow, *Advanced Tools for Advanced Reactors: Analyzing the Role of Modeling and Simulation in the Licensing of Advanced Non-Light Water Reactors*, *Journal of Engineering and Public Policy*. 24 (2021).
- [2] R.B. Renfrow, *Analyzing Unsteady Heat Conduction with Python*, Nashville, TN, 2021.
- [3] A. Cummins, K. Owens, H. Pauls, R.B. Renfrow, J. Rodriguez, A. Zecic, *Poster Presentation: Los Limones Water Distribution System*, Student Scholars Symposium. (2021).
- [4] R.B. Renfrow, *Poster Presentation: Thorium: An Overlooked Solution*, American Society of Engineering Education - Southeastern Section Conference. (2020).