Naomi Raicu

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Education ....

The University of Michigan (UMich)   *Ann Arbor, Michigan*
Doctoral Student in Applied Physics   *Fall 2023 - Present*
- Cumulative GPA: 3.936

The University of Wisconsin-Milwaukee (UWM)   *Milwaukee, Wisconsin*
Summa Cum Laude, Physics Major, Mathematics Minor, UWM Honors College
- Cumulative GPA: 3.977   *Fall 2020 - Spring 2023*
- Cumulative GPA, dually enrolled (high school special) student: 4.0   *Fall 2019 - Spring 2020*

Shorewood High School (SHS)   *Shorewood, Wisconsin*
Valedictorian   *Fall 2016 - Spring 2020*
- Cumulative GPA (Weighted): 4.3 (Unweighted): 4.0

Skills ....

Languages	Python, MATLAB, C++, LaTeX, Igor Pro
Software	LAMMPS, VMD, Ovito, ImageJ, Microsoft Office Suite, Google Workspace, Windows OS, iOS
Lab	Protein Hydrogel Synthesis, Spectrophotometer usage, Molecular Biology, Gel Electrophoresis
Theory	Computational Physics, Statistical Mechanics, Quantum Mechanics, E&M, Biophysics

Research Experience ....

Z Lab, UMich   *Ann Arbor, Michigan*
Graduate Research Assistant (Prof. Y Z, Nuclear Engineering and Radiological Sciences)   *Fall 2024 - Present*

- Simulated collective diffusion of multi-component Lennard-Jones fluids in LAMMPS, comparing metrics such as relaxation time for increasing numbers of chemical species
- Helped prepare experiment samples and coordinate data collection for a polarized neutron scattering experiment at Oak Ridge National Laboratory's Spallation Neutron Source

UMich Research Rotations   *Ann Arbor, Michigan*
Graduate Rotation Student, Newman Lab (Prof. Mark Newman, Complex Systems)   *Summer 2024*
- Wrote a stochastic block model network script in Python to calculate variations in network component size

Graduate Rotation Student, Maldonado Lab (Prof. Stephen Maldonado, Chemistry)   *Winter - Spring 2024*
- Tested analytic expressions and algorithms attempting to connect simulated diffusing-species and adsorbed-species redox reactions in a custom MATLAB cyclic voltammetry model

Rigetti Computing - R&D   *Remote work*
Cryo RF Engineering Contractor   *Fall 2023 - Present*
Cryo RF Engineering Intern   *Fall 2022 - Summer 2023*

- Implemented a novel cupronickel thermal conductivity addition to thermal simulations in Python used by Rigetti hardware engineers to test the efficacy of different quantum computer signaling cables

Fermi National Accelerator Laboratory (Fermilab) & Rigetti Computing   *Batavia, Illinois*
Superconducting Quantum Materials and Systems (SQMS) Quantum Intern   *Summers 2021, 2022*

- Modeled new cable options in a thermal simulation script in Python for hardware engineering recommendations
- Implemented an iterative temperature prediction process to improve thermal load simulation predictions
- Honored as a 2021 SQMS Outstanding Summer Student

Popa Biophysics Lab, UWM   *Milwaukee, Wisconsin*
Undergraduate Research Assistant   *Fall 2020 - Summer 2023*

- Worked independently on constructing a novel fluorescence-based technique that establishes a framework for discovery of mechano-active drugs that combat protein misfolding
- Initiated development on a new interface and computer routines in C++ to upgrade the lab's Force Clamp instrument

High School Research Intern *Summer 2018 - Spring 2020*
- Introduced fluorescent proteins into various E. coli strains and measured fluorescence to determine which strain best expresses the proteins
- Applied polyprotein constructs to force using magnetic tweezers, observing unfolding under force for a protein domain swapping study

Raicu Biophysics Lab, UWM *Milwaukee, Wisconsin*
High School Research Intern *Summer 2017 - 2018*

- Wrote a GUI program in Python that fits theoretical functions to experimental data to determine structures and organization of protein complexes in living cells

Selected Publications and Presentations ....

1. **Raicu N**, Hogan T, Douglas T, Pappas D, Wu X, Snow D, Field M, Hollister M. "Cryogenic Thermal Modeling for Scalable High Density Signaling". Manuscript In Prep.
2. **Raicu N**, Nowitzke J, Popa I. "Constructing a Fluorescence-Based Technique to Model Protein Unfolding". Talk given at the UWM Undergraduate Research Symposium, 2023. Received Outstanding Presentation Award**.**
3. **Raicu N**, Hogan T, Douglas T, Pappas D, Wu X, Snow D, Field M, Hollister M. "Cryogenic Thermal Modeling for Scalable High Density Signaling". Talk given at the American Physical Society March Meeting, 2023.
4. **Raicu N**, Snow D, Wu X, Field M, Vahidpour M, Hogan T, Jackson K, Hollister M. "Modeling Thermal Properties of Coaxial Cables to Improve Quantum Computer Heat Load Predictions". Internal SQMS report, 2022.
5. **Raicu N**, Yeh JH, Snow D, Hollister M, Gensler S. "Modeling Thermal and Electrical Properties of Copper, Brass, and Aluminum to Determine Optimal Signal Line Configurations for Quantum Computers". Internal SQMS report, 2021.
6. Stoneman MR, **Raicu N**, Biener G, Raicu V. "Fluorescence-based Methods for the Study of Protein-Protein Interactions Modulated by Ligand Binding". *Curr Pharm Des*. 2020; 26(44):5668-5683. DOI: 10.2174/1381612826666201116120934. PMID: 33200695.
7. **Raicu N**, Nowitzke J, Popa I. "Study of Protein Mechanics Using a Novel Force-Clamp Rheometer-Based Protein Hydrogel Software". Poster presented virtually at the UWM Undergraduate Research Symposium, 2021. Received Outstanding Presentation Award.

Selected Funding and Awards ....

Rackham Merit Fellowship, University of Michigan Rackham Graduate School	($180,000)	*2023*
Senior Excellence in Research Award, UWM Office of Undergraduate Research (OUR)	($5,000)	*2022*
Judith G. Scott '81 Honors College Scholarship, UWM Honors College	($1,000)	*2022*
Support for Undergraduate Research Fellows Grant, UWM OUR	($6,000)	*2021*
David Lichtman Undergraduate Scholarship, UWM Physics Department	($2,000)	*2021*
UW Credit Union Community Values Scholarship	($3,000)	*2021*
UWM College of Letters and Science Dean's Honor List		*2020-23*
ELKS Association Academic Excellence scholarships	($1,400)	*2020*
HEAB Academic Excellence Scholarship, Wisconsin Higher Educational Aids Board	($9,000)	*2020*
Hawkins Honors Scholarship Award, UWM Honors College	($1,000)	*2020*
Shorewood Foundation Scholarship	($1,000)	*2020*
Verner E. Suomi Scholarship Award for Outstanding Achievement in the Physical Sciences, The University of Wisconsin-Madison CIMSS	($2,000)	*2020*
National Merit Scholarship	($2,500)	*2020*
UWM Milwaukee Scholars Scholarship, UWM College of Letters and Science	($2,000)	*2020*
New Directions Scholarship	($10,000)	*2020*