William V. Jardee

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EDUCATION

Montana State University, Bozeman, MT
B.S., Summa Cum Laude, Professional Physics — GPA: 3.94/4.0
Phi Kappa Phi Honors Society
Minors in: Computer Science, Mathematics, — *(Expected) May 2022*

PROJECTS

Relativistic Runaway Electrons and Lightning Discharge; A Qualitative Overview: A paper on the building blocks of the RREA Theory, alongside motivations, computational and experimental evidence. Survey of step leaders and the related TGF emissions.

RREA Propagation Theory; A Theoretical and Computational Overview: A delve into the theoretical derivation of RREA theory and the implementation of complete Monte Carlo simulations of particle propagation in storm-clouds. (*Ongoing project*)

Introduction to Computational Physics: An overview of Python, LaTeX , and other essential tools to computational sciences. The overview covers both fundamental concepts and detailed delves into specific topics. (*Ongoing project*)

TECHNICAL SKILLS

Languages: Python, Java, C/C++, Matlab, Mathematica, GitHub, LaTeX, HTML, CSS, Excel
Mathematics: Linear Algebra, Dynamical/Chaotic Systems, Computation Theory
Physics: Particle Physics, Observational Astronomy

TEACHING EXPERIENCE

Hillman Scholars Tutor
Allen Yarnell Student Success Center, Montana State University, Bozeman
Educated underprivileged college students in introductory math, physics, computer science, and humanities courses. *July 2021 - Present*

Math Stats Center Tutor
Mathematics Department, Montana State University, Bozeman
Guided students to discover their own answers and understanding in classes ranging from introductory algebra to differential equations. *Aug 2021 - Present*

Proctor/Grader (PHSX 207)
Physics Department, Montana State University, Bozeman
Graded weekly homework and exams of algebra based introductory physics course. *Jan 2021 - May 2021*

Student Lab Assistant (PHSX 205)
Physics Department, Montana State University, Bozeman
Guided students of the introductory physics course through kinematic labs during a weekly lab. *Aug 2020 - Nov 2020*

Smarty Cats Tutor
Allen Yarnell Student Success Center, Montana State University, Bozeman
Made and personalized appointments with student to cover essential STEM topics. *Aug 2019 - May 2020*

Volunteer STEM Tutor
The Rock Youth Center, Bozeman, MT
Held open tutoring hours for high school students who struggle in STEM subjects.
Oct 2019 - March 2020

RESEARCH EXPERIENCE

Undergraduate Researcher
Dr. John Sample's Lab, Montana State University, Bozeman
Analyzed the performance of a soft x-ray spectrometer to be attached to the IMPRESS CUBE-SAT. *Aug 2020 - Dec 2020*

Undergraduate Researcher
Dr. Rufus Cone's Lab, Montana State University, Bozeman
Studied the theory behind and attempted to use an ellipsometer to measure the thickness of thin wafers. *Jan 2020 - Apr 2020*

MISC EXPERIENCE

SPS Treasurer
Society of Physics Students at Montana State University, Bozeman
Handled club finances and lead many efforts in stirring interest in science communication and computational physics. *Feb 2020 - Jan 2022*

Advanced Physics Lab
Instructed Course, Montana State University, Bozeman
Used sophisticated particle trapping apparatuses and computational methods to measure the mass of picogram scale particles. *Aug 2021 - Dec 2021*

AWARDS/ GRANTS

Physics Departmental Scholarship
Norman Mac Rugheimer Scholarship *Aug 2021*
Asbridge Physics Scholarship *Aug 2020*
Montana University Systems Scholarship *May 2018*
Bertha Feaster Scholarship *May 2018*

POSTERS/ PRESENTATIONS

SPS Undergraduate Colloquium
RREA Propagation Theory *Oct 2021*
The Better Poster Design *Feb 2021*
Teaching Yourself Computer Languages *Feb 2021*
Introduction to Python *Feb 2021*
The Basics of Climate Physics *Sept 2020*

OUTREACH

Museum of the Rockies
Grossology *Oct 2021*
Society of Physics Students
Liquid Nitrogen Ice Cream *Oct 2021*
Careers in Industry Panel; Moderator *Mar 2021, Oct 2020*

INTERESTS

Science communication, computational physics, particle physics, chaotic systems, RREA propagation theory