# William V. Jardee

WillJardee.github.io
Github.com/WillJardee
willjardee@gmail.com
(406) 836-2338

## EDUCATION

**Ph.D. in Computer Science** — *Aug 2022 - Present*
*Montana State University, Bozeman, MT* — GPA: 3.71/4.0

**B.S. in Physics** — *Aug 2018 - May 2022*
*Montana State University, Bozeman, MT* — GPA: 3.81/4.0

- Summa Cum Laude
- Honors Highest Distinction
- Phi Kappa Phi Honors Society
- Minors in Computer Science and Mathematics

## 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*)

## RELEVANT COURSES AND TECHNICAL SKILLS

**Languages**

- Coding: Python, Java, C/C++
- Mathematical Analysis: Matlab, Mathematica, Excel
- Communication: Git/GitHub, LaTeX, HTML, CSS, Markdown

**Computer Science**

- Adv. Artificial Intelligence *(CSCI 546)*[1] — *In Progress*
- Computational Geometry *(CSCI 534)* — *In Progress*
- Machine Learning *(CSCI 547)*
- Artificial Intelligence *(CSCI 446)*

**Mathematics**

- Analytic and Approximate Differential Equations
- Operator Algebra
- Linear Algebra *(M 333)*
- Dynamical/Chaotic Systems *(M 454/455)*
- Computation Theory *(CSCI 538)*
- Index/Einstein Notation
- Metric Calculus

**Physics**

- Intro to General Relativity *(PHSX 491)*
- Observational Astronomy *(PHSX 491)*
- Quantum Mechanics *(PHSX 461/462)*
- Elementary Particle Physics *(PHSX 451)*
- Statistical Mechanics *(PHSX 446)*

**Communication and Leadership**

- Seminar: Worldbuilding *(HONR 494)*

[1] Lables correspond with course numbers from Montana State University. CSCI: Computer Science, PHSX: Physics, M: Mathematics.

Leadership for Future STEM Professionals *(HONR 491)*

**TEACHING EXPERIENCE**

**Introduction to ML Grading Assistent (EN605.649)** — *Jan 2023 -Present*
*Allen Yarnell Center for Student Success; MSU, Bozeman*

**Hillman Scholars Tutor** — *Jul 2021 - May 2022*
*Allen Yarnell Center for Student Success; MSU, Bozeman*

**Math Stats Center Tutor** — *Aug 2021 - May 2022*
*Mathematics Dept.; MSU, Bozeman*

**Introductory Physics Proctor/Grader (PHSX 207)** — *Jan 2021 - May 2021*
*Physics Dept.; MSU, Bozeman*

**Introductory Physics Student Lab Assistant (PHSX 205)** *Aug 2020 - Nov 2020*
*Physics Dept.; MSU, Bozeman*

**Smarty Cats Tutor** *Aug 2019 - May 2020*
*Allen Yarnell Center for Student Success; MSU, Bozeman*

**Volunteer STEM Tutor** *Oct 2019 - Mar 2020*
*The Rock Youth Center; Bozeman, MT*

## RESEARCH EXPERIENCE

**Graduate Researcher** *Aug 2022 - Present*
*Numerical Intelligent Systems Laboratory; MSU, Bozeman*
*In Cooperation with RESONON Hyperspectral Imagine Solutions*

**Undergraduate Researcher** *Aug 2020 - Dec 2020*
*Dr. John Sample's Lab; MSU, Bozeman*

**Undergraduate Researcher** *Jan 2020 - Apr 2020*
*Dr. Rufus Cone's Lab; MSU, Bozeman*

## MISC. EXPERIENCE

**SPS Treasurer** *Feb 2020 - Jan 2022*
*Society of Physics Students at Montana State University, Bozeman*

## AWARDS AND GRANTS

**Benamin Fellowship** *Sept 2022*

**Dept. Physics Outstanding Graduating Senior** *Apr 2022*

**Physics Departmental Scholarship**
*Norman Mac Rugheimer Scholarship* *Aug 2021, Jan 2022*
*Asbridge Physics Scholarship* *Aug 2020*

**Montana University Systems Scholarship** *May 2018*

**Bertha Feaster Scholarship** *May 2018*

## POSTERS AND PRESENTATIONS

**MSU Relativity and Astrophysics (RelAstro) Seminar**
*Introduction to Data Exploration with Machine Learning* *Nov 2022*

**MSU Guest Lecturer**
*Introduction to Python Seminar: Building Neural Networks* *Nov 2022*

**MSU Student Research Celebration**
*Rule Extraction from a Random Forest* *May 2022*

**SPS Undergraduate Colloquium**
*How to Teach Yourself to Code* *Nov 2022*
*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

**Montana Science Center**
*Summer Camp; Volunteer Counselor* *Jun 2022 - Jul 2022*
*Science After Dark; Event Volunteer* *Oct 2022*
*Pride in STEM; Event Volunteer* *Nov 2022*

**Museum of the Rockies**
*Grossology; Event Volunteer* *Oct 2021*

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