

Uli Raudales

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EDUCATION

Whitman College

Bachelor of Arts in Computer Science, Mathematics, & Physics

Walla Walla, WA

Aug. 2021 – Dec. 2025

TECHNICAL SKILLS

Languages: Python, C/C++, Objective-C, Mathematica, Julia, Lua, TypeScript

Frameworks: React, Node.js, Apple Metal, OpenGL

Tools: Git, Jupyter, Perf, Apple Instruments

Libraries: pandas, NumPy, Matplotlib, Eigen, SciPy, Google Benchmark

EXPERIENCE

Undergraduate Research Assistant

June 2024 – Present

Whitman College

Walla Walla, WA

- **Closed Diagrams in Information Field Theory for Bayesian Inference** May 2024 – Present
 - * Conducted research to enhance Bayesian inference using "closed diagrams" in Information Field Theory (IFT) for more accurate partition function calculations.
 - * Developed Python code for non-Gaussian distributions and linear regression models, with a focus on complex data sets and high-dimensional parameter spaces.
 - * Contributing to the development of an open-source Python package implementing these methods.
- **Numerical Methods for Solving Delay Differential Equations in C++** June 2024 – Aug. 2024
 - * Improved upon the design and implementation of a C++ library for solving delay differential equations (DDEs)
 - * Worked on implementing data structures and algorithms for efficient storage and retrieval of past states in DDEs
 - * Optimized performance using profiling tools (Perf) and benchmarked against top libraries in C/C++, Fortran, and Julia.

Teaching Assistant / Computer Lab Aide

Sept. 2023 – Present

Whitman College

Walla Walla, WA

- TA for Computer Systems Fundamentals and Computational Methods in Physics
- Assist students with course material, lab assignments, and projects, providing 1-on-1 support during office hours
- Helped grade exams and assignments, ensuring consistent feedback
- Maintained the computer lab and addressed technical issues with systems and software

Information Technology Intern

May 2022 – Aug. 2022

Baker Boyer National Bank

Walla Walla, WA

- Developed automation scripts to streamline software deployment processes using bat scripting
- Assisted in maintaining network infrastructure and providing technical support to staff, enhancing operational efficiency
- Managed inventory data and contributed to infrastructure documentation and auditing processes

PROJECTS

MetalLib | C, Objective-C, Apple Metal

- Developed a lightweight 3D graphics library in C, wrapping the Apple Metal API for performance-oriented applications
- Built a custom windowing system using Apple Cocoa and Foundation frameworks, ensuring cross-platform functionality
- Optimized the library using Apple Instruments, leading to a 20% increase in rendering performance

Quantum Algorithms | Python, Q#

- Implemented quantum algorithms for Shor's, Grover's, and Simon's problems using Q#
- Implemented quantum circuits for quantum Fourier transform, phase estimation, and amplitude amplification in Python Qiskit