

EDUCATION

- **B.Sc, Honours Combined Physics and Astronomy (Co-op Physics)** *Sept. 2018 - Present*
University of Victoria || GPA (9 pt scale) 8.20, 8.81 since Jan. 2020 Degree expected in June 2024
- **Senior Secondary** *2014-2018*
Stelly's Secondary School || Graduating Average 90.4% Graduated with honours

PUBLICATIONS

- **Light Streak Photometry and Streaktools (working)**
<https://doi.org/10.48550/arXiv.2311.08443>

RESEARCH EXPERIENCE

- **Petrophysics Laboratory Assistant (sup. Dr. Randy Enkin)** *Jan - April 2024*
Pacific Geoscience Centre, Sidney, BC

Four month co-op work term as a laboratory assistant for Dr. Randy Enkin in his rock physical properties project. Measured properties such as density, magnetic susceptibility and AC impedance of large shipments of rock samples. Wrote a program in Python 3 for fitting rock impedance spectra with parametric models, intended for publication.

- **Undergraduate Student Research Award (sup. Dr. Justin Albert)** *May. 2023 - Sept. 2023*
ORCASat data analysis UVic, Victoria, BC

Four months of work as a paid research assistant, analyzing image data related to the ORCASat CubeSat project. This satellite was a proof of concept for precise photometric calibration using LEO light sources. Culminated in the writing of the *Streaktools* Python source code, which allows users to perform mmag-precise MCMC-based photometric calibration using real and simulated light streaks.

- **UVic Honours Thesis (sup. Dr. Brenda Matthews)** *Sept. 2022 - Apr. 2023*
A Suite of New ALMA Images and Modelling of 10 Circumstellar Debris Disks UVic, Victoria, BC

Full-term (8 month) undergraduate senior thesis. Created a collection of ideal images of 10 circumstellar debris disks from ALMA data, intended as a resource for use in future projects. Included measurements of total disk flux, flux asymmetry, fitting of various 3D emission models, and large gravity simulations of the perturbing effects of planets to try to explain observed asymmetries.

PUBLICLY AVAILABLE SIMULATION CODE

- **Streaktools (Python)** *2023*
<https://github.com/jgoodeve/streaktools>

Wrote publicly available, user-friendly Python code for the realistic simulation of satellite light-streaks in astronomical images, and accurate Markov Chain Monte-Carlo (MCMC) based astronomical photometric calibration using real and simulated streaks. Part of USRA research with Dr. Justin Albert.

PUBLIC DATA REDUCTION TUTORIALS

- **ALMA Primer Series**

2021-2022

UVic Co-op, National Research Council Canada || <https://almascience.nrao.edu/tools/alma-primer-videos>

Worked as the primary video editor, as well as narrator and writer for the *ALMA Primer Series* of tutorials concerning astronomical interferometry and Atacama Large Millimetre Array (ALMA) data reduction. My videos are featured prominently on the science website of one of the world's foremost observatories.

AWARDS & DISTINCTIONS

- **UVic Faculty of Science Dean's List (2×)**

2020-2021, 2022-2023

UVic || Awarded for achieving term GPA in the top 10% of the faculty

- **NSERC Undergraduate Student Research Award (\$6000)**

2023

UVic, NSERC

- **John Goudy Science Scholarship (\$1550)**

2023

UVic || Awarded to an academically outstanding fourth-year student

- **B.W. Pearse Science Scholarship: Physics (\$328)**

2023

UVic || Awarded for academic excellence

- **Physics Red Scholarship (\$1655)**

2022

UVic || Awarded for having best laboratory performance among fourth-year students in the department

- **Dorothy Harper Memorial Scholarship (\$3280)**

2022

UVic || Awarded for outstanding academic performance in 2021-2022

- **UVic President's Scholarship (2×) (\$1520, \$2450)**

2021, 2023

UVic || Awarded for outstanding academic performance in the preceding year

- **UVic ATLAS Masterclass Participant**

2018

UVic || Workshop on the Higgs' Boson discovery; outstanding physics students invited to partake

- **Certificates of Recognition for Excellence**

2017 - 2018

Stelly's Secondary

- AP English Literature / English 12
- Social Studies
- Musical Theatre
- SENCOTEN (language)
- Media

- **Colin Perry Bursary**

2017

676 Kittyhawk RCACS

TECHNICAL SKILLS

- **Programming Languages:** Python, limited C
- **Tools and Frameworks:** JupyterLabs, CASA, OBS Studio, Adobe suite, Latex
- **Operating Systems:** Windows, Linux & Android

RELEVANT COURSES TAKEN

- **Astronomy & Astrophysics:** Intro to Planetary Science (99%), Intro to Observational Astronomy (92%), Intro to Extragalactic Astronomy (98%), Intro to Cosmology (98%), Astrophysical Processes (98%), Stellar Astrophysics (100%)
- **Physics:** Optics (98%), Quantum Mechanics II (97%), Computer assisted Math & Physics (88%), Classical Mechanics II (95%), Mathematical Physics (95%), Electromagnetic Theory (94%), Statistical Mechanics (98%), General Relativity (100%), Time Series Analysis (98%)
- **Mathematics:** Complex variables (95%), Intro to PDEs (95%), Intermediate ODEs (93%), Introduction to Probability & Statistics (95%)

TEACHING EXPERIENCE

- **Teaching Assistant** *Sept 2020 - June 2021*
UVic Math & Stats Dept. *UVic*
 - Classroom Assistant and Marker for Calculus II
 - Marker for Calculus I
- **UVic Astronomy Open House Staff/Volunteer** *2018 - present*
UVic Phys & Astro Dept. *UVic*
 - Five years of weekly outreach experience in public astronomy outreach
 - Explained topics from across STEM to children and academics alike, enriching their understanding of topics and my own
 - Have at different times been paid or have volunteered
- **Air Cadet** *2017 - 2018*
676 Kittyhawk Squadron RCACS *Sidney, BC*
 - Three years of experience teaching youth ages 12-15 regularly in a classroom environment
 - Effective teaching of teenagers required and produced strong social flexibility and interpersonal skills

VOLUNTEER EXPERIENCE

- **UVic Astronomy Open House Volunteer** *2018 - present*
UVic Phys & Astro Dept. *UVic*
 - 5 years of weekly experience in public astronomy outreach
 - Explained topics from across STEM to children and academics alike
 - Have at different times been paid or have volunteered
- **Air Cadet Flight Simulator Instructor** *2017 - 2018*
676 Kittyhawk Squadron RCACS *Sidney, BC*
 - Volunteered time to teach junior and intermediate cadets to fly in an organized simulator & classroom program

REFERENCES

- **Dr. Brenda Matthews** *brenda.matthews@nrc-cnrc.gc.ca*
Senior Research Officer, NRC HAA and Adjunct Associate Professor, UVic *778-677-5757*
- **Dr. Gerald Schieven** *gerald.schieven@nrc-cnrc.gc.ca*
Senior Research Officer, NRC HAA *250-888-0844*
- **Dr. Justin Albert** *jalbert@uvic.ca*
Associate Professor of Physics and Astronomy, UVic