Joshua L. Goodeve

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Education

- **MSc, Physics (ongoing) (sup. Dr. Adrian Liu & Dr. Daryl Haggard)** Sept. 2024 - present
  Trottier Space Institute, McGill University | Searching for slow radio transients with CHORD
- **BSc, Honours Combined Physics and Astronomy (Co-op Physics)** 2018 - 2024
  University of Victoria | GPA (9 pt scale) 8.20, 8.81 since Jan. 2020 Graduated with distinction
- **Senior Secondary** 2014-2018
  Stelly's Secondary School | Graduating Average 90.4% Graduated with honours

Publications

- **Light Streak Photometry and Streaktools**
  Joshua L. Goodeve 2025 AJ 169 151 https://iopscience.iop.org/article/10.3847/1538-3881/ada950

Other Projects & Research

- **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.

- **ALMA Video Working Group (sup. Brenda Matthews & Gerald Schieven)** 2021-2022
  https://almascience.nrao.edu/tools/alma-primer-videos UVic, Victoria, BC

Two separate 4 month internships working as part of a working group creating instructional videos about radio interferometry, intended for other astronomers. Contributed as principal video editor, scriptwriter, and often narrator. These videos, intended for other astronomers, are featured on the website of the ALMA observatory and have been viewed over 17,000 times.

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.

Conferences Attended

- **CRAQ 2025** May 2025
  2025 meeting of the Centre de Reserche en Astrophysique du Quebec. Gave brief research talk.

Major Scholarships

- **NSERC CGRS-M ($27,000)** 2024-2025
  National Sciences and Engineering Research Council Canada, McGill University
- **NSERC CGRS-M ($27,000)** 2024-2025
  Offered by UBC - declined

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 with full course load
- **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 senior 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
  – SENĆOTEN (language)
  – Media

- **Colin Perry Bursary** 2017
  676 Kittyhawk RCACS

Upper-Level Courses

- **Astronomy & Astrophysics**: Planetary Science (99%), Observational Astronomy (92%), Extragalactic Astronomy (98%), Intro to Cosmology (98%), Astrophysical Processes (98%), Stellar Astrophysics (100%), High Energy Astrophysics (500 level, A), Modern Observational Methods (500 level, A)
- **Physics**: Optics (98%), Quantum Mechanics II (97%), Computer assisted Math & Physics (200 level, 88%), Classical Mechanics II (95%), Mathematical Physics (95%), Electromagnetic Theory (94%), Statistical Mechanics (98%), General Relativity (100%), Time Series Analysis (98%), Nuclear Physics (A), Computational Physics (500 level, A)
- **Mathematics**: Complex variables (95%), Intro to PDEs (95%), Intermediate ODEs (93%), Introduction to Probability & Statistics (95%)

Teaching Experience

- **Teaching Assistant** 2024-2025
  McGill Physics Dept. McGill

  – Tutorial TA and marker for PHYS 260 (fall 2024 and fall 2025) (special relativity and introduction to quantum mechanics)
  – Tutorial TA and In-lecture classroom aid for PHYS 102 in winter 2025 (introductory electromagnetism)

- **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 - 2024
  UVic Phys & Astro Dept. UVic

  – Five years of weekly 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 - 2024
  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

Technical Skills

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