Olivier Gilbert

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Education

PhD **University of Michigan**, Astronomy — Aug 2025 - Present
- Advisor : Dr. Jinyi Yang

BSc **Université Laval**, Physics — Sept 2022 – May 2025
- **CGPA:** 4.12/4.33
- Concentration in astrophysics (required 4 specialized elective courses)

DCS **CEGEP de Levis**, Natural Sciences — Aug 2020 – May 2022
- **R-Score:** 32.901

Experience

Bishop's University, Research Assistant — Sherbrooke, CA
Advisor: John J. Ruan — May 2025 – Aug 2025
- Searched for signs of binary supermassive black holes in optical light curves.
- Extracted light curves from optical surveys like Zubercal and ASAS-SN.
- Used gaussian processes to model light curves with quasi-periodic oscillations and red noise.
- Developped software to identify the presence of quasi-periodic oscillation in a light curve.

Bishop's University, Research Assistant — Sherbrooke, CA
Advisor: John J. Ruan — May 2024 – Aug 2024
- Researched morphological link between host galaxies of Quasi-Periodic Eruptions and Tidal Disruption Events.
- Extracted and analyzed images from wide-field surveys.
- Calculated morphological parameters of galaxies from lenstronomy model fitting.
- Used model comparison to determine optimal way to model host galaxies.
- Performed statistical analysis to compare distributions of galaxies.
- Wrote a paper as a first-author. *(See the "Publications" section below)*

Bishop's University, Research Assistant — Sherbrooke, CA
Advisor: John J. Ruan — May 2023 – Aug 2023
- Researched physics of accretion disks of low-brightness active galactic nuclei by studying changing-look quasars and their spectral energy distribution.
- Analyzed images from the *Hubble Space Telescope* and the *Chandra X-ray Observatory*.
- Reduced spectral data using iRAF.
- Modeled quasars using Sérsic ellipse plus point source fitting with PSF convolution.
- Produced paper-quality figures and tables.
- Wrote a paper as a first-author. *(See the "Publications" section below)*

Université Laval Foundation, Programmer — Québec, CA 2022
- Developed and programmed an online generosity calculator to fit the income of the donors.

Publications

Using Faded Changing-Look Quasars to Unveil the Spectral Energy Distribution Evolution of Low-Luminosity Active Galactic Nuclei — Submitted to ApJ, Aug 2025

Gilbert, O., Ruan, J. J., Duffy, L., Eracleous, M., Anderson, S. F., Green, P. J., Haggard, D., Plotkin, R. M., Runnoe, J. C., Sobolewska, M.

10.48550/arXiv.2508.01933

A Host Galaxy Morphology Link Between Quasi-Periodic Eruptions and Tidal Disruption Events — Submitted to ApJ, Sep 2024

Gilbert, O., Ruan, J. J., Eracleous, M., Haggard, D., Runnoe, J. C.

10.48550/arXiv.2409.10486

Scholarships

Undergraduate Student Research Award (USRA), National Sciences and Engineering Research Council of Canada (NSERC). $6000 CAD — May 2024 - Aug 2024

Undergraduate Student Research Award (USRA), National Sciences and Engineering Research Council of Canada (NSERC). $6000 CAD — May 2023 - Aug 2023

Presentations

American Astronomical Society (AAS) 245th Annual Meeting iPoster presentation on Quasi-Periodic Eruptions. NASA/ADS abstract — Jan 2025

Skills

Python: numpy, matplotlib, astropy, scipy, lenstronomy, pandas, jax, etc.

Other languages: C++, JavaScript, HTML, CSS, C#

Other tools: LaTeX, SAO DS9, iRAF, HEASARC, CIAO

Leadership and Public Outreach

Presentation at Local Astronomy Club Invited presenter for the monthly meeting of a local astronomy club. — Sep 2024

Basketball: Captain of an Intramural Team at Université Laval — Sep 2023 - Present

Volleyball: Member of an Intramural Team at Université Laval — Sep 2022 - Present

Media Coverage

Astrobites Who's Home? A Supermassive Black Hole & its Tiny Friends — Dec 2024