FRÉDÉRIC FORTIER-CHOUINARD

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Education

PhD Candidate in Electrical Engineering, Laval University Sept. 2024 – Present
Title: Physics-based Controllable Image Generation Models.
Fast-track PhD program under **Prof. Jean-François Lalonde**, allowing the integration of my Master's research into my PhD thesis. Funded by an **NSERC Scholarship**.

MSc in Electrical Engineering (GPA: 4.33/4.33), Laval University May 2023 – Aug. 2024
Title: Controllable image harmonization.
Research under Prof. Jean-François Lalonde, funded by an **FRQNT Scholarship**, in collaboration with Depix Inc.

BEng in Computer Engineering (GPA: 4.19/4.33), Laval University Sept. 2019 – Apr. 2023
- Two software development internships and one computer vision research internship.
- VP of competitions for the 2024 Quebec Engineering Competition (200+ participants from 11 universities), managing competition designers and liaising with the executive committee.
- Exchange semester in fall 2022 at **EPFL** in Lausanne, Switzerland.

Publications

F. Fortier-Chouinard, Z. Zhang, L.-E. Messier, M. Garon, A. Bhattad, J.-F. Lalonde. (2025) *SpotLight: Shadow-Guided Object Relighting via Diffusion*. **3DV 2026**. [Project page]
- Developed a novel method for lighting control using diffusion models.
- Developed an evaluation dataset, ran a user study and compared several baselines.

Z. Zhang, **F. Fortier-Chouinard**, M. Garon, A. Bhattad, J.-F. Lalonde. (2024) *ZeroComp: Zero-shot Object Compositing from Image Intrinsics via Diffusion*. **WACV 2025 (Oral)**. [Project page]
- Developed a dataset for evaluating object compositing methods.
- Developed parts of the method, evaluated baselines and ran a user study.

Manuscripts submitted for review

M.R.K. Dastjerdi, D. Tanguay-Gaudreau, **F. Fortier-Chouinard**, Y. Hold-Geoffroy, C. Demers, N. Kalantari, J.-F. Lalonde. (2025) *PanDORA: Casual HDR Radiance Acquisition for Indoor Scenes*. [Project page]
- Developed parts of the data processing pipeline and implemented a baseline method.

Patent applications

Z. Zhang, **F. Fortier-Chouinard**, M. Garon, A. Bhattad, J.-F. Lalonde. (2024) *Systems and Methods for Compositing a Virtual Object in a Background Image*. Patent pending.

Work Experience

Research Intern, Adobe May 2025 – Aug. 2025
- Developed a method for controlling video generation models.
- Submitted a paper and a patent application as first author.

Teaching Assistant, Laval University Sept. 2021 – Present
- Applied Linear Algebra (MAT-2930), Fall 2023, 2024 & 2025.
- Applied Electromagnetism (GEL-2910), Winter 2022 & 2023.
- Circuits (GEL-1000), Fall 2021.

Computer Vision Research Intern, Laval University May 2022 – Aug. 2022
- Conducted research under Prof. Jean-François Lalonde, funded by an **NSERC Scholarship**.
- Developed a novel method for image inpainting at high resolution leveraging GANs.

Applied Machine Learning Intern, Dimonoff May 2021 – Aug. 2021
- Developed & deployed a model for car detection in parking lots using LiDAR sensors.

Software Development Intern, Calcul Québec May 2020 – May 2021
- Developed MC Hub, a web service for managing cloud HPC clusters.

Co-founder and Developer, PrevU May 2018 – June 2020
- Developed an online platform for safely previewing and selling images, videos & audio content.

Awards

- Winning team of the Code Quality Jam at Adobe, 2025.
- NSERC PhD Research Scholarship ($40,000/year), 2025-2028.
- FRQNT Master's Training Scholarship ($20,000/year), 2023-2025.
- Director's award for best academic performance, 2022, 2023.
- IEEE Student Branch Excellence Award, 2022, 2023.
- 2nd place in programming at the Canadian Engineering Competition, 2022.
- 1st place in programming at the Québec Engineering Competition, 2022.
- NSERC Undergraduate Student Research Award ($6,000), 2022.
- 3rd place in programming at the Canadian Engineering Competition, 2021.
- Full-time student at Qufu Shaolin Kung Fu School, China, 2019.
- Guinness World Record, Fastest marathon with two runners handcuffed together (male), 2018.

Reviewing experience

3DV 2026, WACV 2025, CRV 2025.

Languages

English (excellent) French (native) Spanish (basic)

Technical Skills

Familiar research topics: image & video diffusion, 3D control, relighting, inpainting.

Relevant coursework: Machine Learning, Deep Learning, Computer Vision, Computational Photography, Signal Processing, Information Theory, Quantum Physics I.

Languages & libraries: Python, PyTorch, C++, C.

Creative tools: Blender, Photoshop, Illustrator, Premiere, SolidWorks.