

Kérian Fiter

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RESEARCH INTERESTS

Digital Twin Engineering (DTE), Trustworthiness & Explainability, Large Language Models (LLMs), Ontologies (OML), Neuro-symbolic AI, Robotics & Simulation, Human-Computer Interaction (HCI), XR/Virtual Reality.

TECHNICAL SKILLS

Languages: Python, C++, C#, Bash

AI & Modeling: Local LLM inference (Ollama), LangChain, Time-series foundation models (TimesFM)

Simulation & XR: ROS2, Gazebo, Multi-Agent Systems, Unity (Meta XR), Unreal Engine

Ontologies & Dev Tools: OML, OWL, SPARQL, OpenCAESAR, Linux, Git, Docker, CI/CD

EDUCATION

Polytechnique Montréal

2024 – Present

PhD in Computer Engineering – Supervised by Prof. Bentley Oakes

Montreal, Canada

- Thesis: “Accelerating the Engineering of Trustworthy Digital Twins”.
- Admitted to the accelerated PhD track via the integrated Master’s–Doctorate program.

Polytechnique Montréal

2024 – 2026

Master of Applied Science in Computer Engineering

Montreal, Canada

- Completed within the integrated Master’s–Doctorate track and the double degree with École Centrale de Nantes.

École Centrale de Nantes

2022 – 2026

Master of Science in Engineering (Diplôme d'Ingénieur)

Nantes, France

- French “Grande École” ranked among the top 10 engineering schools in France.
- Multidisciplinary engineering curriculum. Specialization in Software Engineering for Virtual & Augmented Reality.
- Admitted to the double degree program with Polytechnique Montréal on academic merit.

Lycée Chateaubriand

2020 – 2022

Post-Secondary Preparatory Program / CPGE (MPSI/MP)

Rennes, France

- Intensive foundation in advanced mathematics and physics; admitted to École Centrale de Nantes via national competitive exams.

ACADEMIC & INDUSTRY EXPERIENCE

Michelin

2026 (8 months)

Software Research Engineer Intern – Mitacs Accelerate Grant

Montreal, Canada

- Built a Digital Twin architecture on time-series foundation models (TimesFM) to accelerate strategic planning for a €3B-revenue business unit.
- Gathered requirements from around 30 stakeholders across four departments and translated them into a software architecture and an interactive decision-support tool exposing forecast uncertainty.

Naval Group Pacific

2024 (5 months)

Software Engineer Intern – Supervised by Prof. Cédric Buche

Adelaide, Australia

- Engineered multi-agent drone simulations in maritime environments for the LOTUSim Digital Twin.
- Built with ROS2, Gazebo, C++ and Python, affiliated with the CNRS International Research Lab (IRL CROSSING).

Orange Innovation

2023 (1 month)

Software Engineer Intern

Lannion, France

- Automated drift verification for anechoic chamber measurements, reducing 5G/6G antenna calibration time.

AWARDS

Best Extended Abstract Award

2026

- 3rd International Conference on Engineering Digital Twins (EDTconf 2026), co-located with MODELS 2026, Málaga, Spain, for *Involving before Evolving: A Vision for Trustworthy Enterprise Digital Twin Engineering*.

PUBLICATIONS

Involving before Evolving: A Vision for Trustworthy Enterprise Digital Twin Engineering

2026

- **Kérian Fiter**, Adil Lagrou, Franck Dervault, Bentley Oakes
- Published and presented at the International Conference on Engineering Digital Twins (EDTconf/MODELS-C 2026).
- DOI: [10.1145/3837062.3839094](https://doi.org/10.1145/3837062.3839094). In collaboration with Michelin. Best Extended Abstract Award.

DTScribe: Generating Models for Digital Twin Reporting using Local Large Language Models

2026

- **Kérian Fiter**, Angelica Portocarrero, Bentley Oakes
- Under major revision at the International Journal on Software and Systems Modeling (SoSyM).
- Combines local LLMs with an automated ontological reasoner harness to generate formal models.
- Preprint: [arXiv:2610.18635](https://arxiv.org/abs/2610.18635). Code: github.com/oakeslabmtl/DTScribe.

A Probabilistic Approach for Software Update Coordination in Digital Twins

2026

- Mikkel Schmidt Andersen, **Kérian Fiter**, Cláudio Gomes, Bentley Oakes, Michael Sandberg, Peter Gorm Larsen
- Under major revision at the International Journal on Software and Systems Modeling (SoSyM).

DTInsight: A Tool for Explicit, Interactive, and Continuous Digital Twin Reporting

2025

- **Kérian Fiter**, Louis Malassigné-Onfroy, Bentley Oakes
- Published and presented at the International Conference on Engineering Digital Twins (EDTconf/MODELS-C 2025).
- DOI: [10.1109/models-c68889.2025.00030](https://doi.org/10.1109/models-c68889.2025.00030). Code at github.com/oakeslabmtl/DTInsight.

TEACHING & PRESENTATIONS

Tutorial Presenter

2025 – 2026

- “Promoting Observability in Digital Twin Reporting: A Hands-On Tutorial for DTInsight”, MODELS 2026, Málaga, Spain (Oct. 2026).
- “What is a Digital Twin and How Do I Build One?”, SEMLA Symposium, Montréal, Canada (Jun. 2025).
- Both co-presented with Prof. Bentley Oakes.

Guest Lecturer | Digital Twin Engineering course, Polytechnique Montréal

Feb. 2026

- In-class lecture on Digital Twin reporting and explainability.

Invited Speaker

2025 – 2026

- Use Case and Digital Twin Factory Workshop, Lyon, France (Jan. 2026).
- SEMTL/SERIQ, Université de Montréal, Canada (Sep. 2025).

ACADEMIC SERVICE

Student Volunteer: ACM FSE 2026, SEMLA 2026, ACM/IEEE MODELS 2025

2025 – 2026

LANGUAGES

French (Native) | **English** (Bilingual/Fluent) | **Spanish** (Intermediate)