Simon-Pierre Boucher

Professor — Department of Administrative Sciences

Université du Québec en Outaouais (UQO), Gatineau — Pavillon Alexandre-Taché

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Code git.spboucher.ai **Languages** French & English (bilingual)

PROFILE

Professor in the Department of Administrative Sciences at Université du Québec en Outaouais (UQO). Research in financial econometrics, commodity markets, monetary policy announcements, high-frequency finance, volatility modelling, textual analysis, and financialization. Completing a Ph.D. in Business Administration (Finance and Insurance) at Université Laval under the supervision of Prof. Marie-Hélène Gagnon and Prof. Gabriel J. Power. Alongside academic work, builds native macOS applications focused on AI and local LLMs (the Zyquo suite) and open-source web platforms for financial and housing-market analytics.

POSITIONS

Professor — Department of Administrative Sciences — Present

Université du Québec en Outaouais (UQO), Gatineau

Courses in real-estate valuation (IMM1003 — Éléments d'évaluation immobilière; IMM1033 — Méthodes du coût); applied research in hedonic pricing and housing-market measurement (UQO Working Paper Series).

Lecturer — 2021 – Present

Université Laval, Québec City

Capital Markets, Financial Econometrics I, Financial Management, and Financial Theory at the undergraduate and graduate levels.

Teaching Assistant — 2018 – 2021

Université Laval, Québec City

Portfolio Management, Corporate Finance (undergraduate & graduate), Financial Strategies & Policies I, and Financial Theory.

EDUCATION

Ph.D. in Business Administration (Finance and Insurance) — 2020 – Present

Université Laval — supervisors: Prof. Marie-Hélène Gagnon & Prof. Gabriel J. Power

Thesis: *Three Essays on High-Frequency Return and Volatility Dynamics in Commodities and Financial Futures Markets* (188 pages).

M.Sc. in Business Administration (Finance) — 2017 – 2019

Université Laval

Thesis: *Impact of Commuting Times on Residential Property Values: Evidence from the Province of Québec*.

B.B.A. in Business Administration (Finance) — 2013 – 2017

Université Laval

PEER-REVIEWED PUBLICATION

Speculative Trading in Energy Markets: Evidence from Macroeconomic Surprises — 2025

Boucher, S.-P., Gagnon, M.-H., & Power, G. J. — *The Energy Journal*

PH.D. THESIS CHAPTERS

1. **Speculative Trading in Energy Markets: Evidence from Macroeconomic Surprises**

   Revised version published in The Energy Journal (2025)

2. **Seeing Through the ETF: Indicative NAV and Commodity Volatility Transmission**
Submission version, Journal of Futures Markets

3. **Returns and Volatility Around FOMC Announcements: A High-Frequency Analysis of Policy Tone and Novelty**
Manuscript, 2026

UQO WORKING PAPER SERIES

WP 2 **Decoding Real Estate Descriptions: Semantic Embeddings and Hedonic Pricing of Residential Properties in Quebec** 2026
Sentence-transformer embeddings of listing descriptions added to hedonic models of 17,087 Quebec houses — adjusted R^2 lifted from 0.452 to 0.511. 53 pages.

WP 3 **Hedonic Housing Price Models for the United States: A Multi-Method Comparison of Parametric, Quantile, and Machine Learning Approaches** 2026
OLS, quantile regression, and XGBoost + SHAP compared on 788,842 Zillow listings covering all 50 states and DC. 60 pages.

WP 5 **Airbnb, Residential Rents, and Housing Market Pressure: A Hedonic and Spatial Econometric Analysis** 2026
Hedonic, spatial, quantile, and ML evidence from 8,303 Quebec rental listings and 3,456 Airbnb listings — each active Airbnb within 500 m associated with ≈0.4% higher asking rent. 51 pages.

WP 7 **The Options-Implied Information Content for Cross-Asset Return and Volatility Prediction: Evidence from 3.8 Billion Option Contracts** 2026
Options-implied moments forecast returns and volatility on 264,383 ticker-days (69 tickers, 2010–2025); a kurtosis long/short strategy delivers a Sharpe ratio of 2.33. 29 pages.

WP 9 **A Grand Hedonic Model of the Canadian Housing Market: Decomposing the Value of Structure and Location** 2026
140,931 MLS listings with 1,153 neighbourhood (FSA) fixed effects — location alone adds ≈30 points of R^2; 15.8% median absolute error out of sample. 26 pages.

WP 10 **The Assessment Gap in Quebec: Vertical and Horizontal Inequity in Municipal Property Valuation** 2026
First province-wide audit of property-assessment equity in Canada — 522,769 sales matched to the assessment rolls; 99% of municipalities fail the IAAO uniformity standard. 29 pages.

WP 11 **Half a Million Prices, Twenty Models: A Systematic Assessment of Hedonic Specifications and Estimation Methods for the Quebec Housing Market, 2021–2026** 2026
Controlled horse race of 20 hedonic models on 514,212 roll-matched sales — spatial controls are first-order (~10 pp of MdAPE); machine learning's edge under random validation reverses under a forward-in-time split. 23 pages.

EARLIER WORKING PAPERS

Has Financialization Changed the Impact of Macro Announcements on U.S. Commodity Markets? May 2022
SSRN Working Paper

Modelling Volatility Dynamics Between Commodity ETFs and Their Net Asset Value using BVAR and HAR Models Jan. 2023
Working Paper

Returns and Volatility Around FOMC Announcements: A High-Frequency Analysis of Policy Tone and Novelty Nov. 2023
Working Paper

CONFERENCE PRESENTATIONS

CRREP Research Day 2022, 2023

Canadian Economics Association — 61st & 62nd Annual Conferences 2022, 2023

7th Winter Workshop on Commodity Markets — Mont-Tremblant | 2024

TEACHING

Professor — Université du Québec en Outaouais (UQO)

CODE	COURSE	MATERIAL
IMM1003	Éléments d'évaluation immobilière — foundations of real-estate appraisal: market analysis, comparison and income methods	14 lecture decks, 3 practical assignments with Excel templates, course plan
IMM1033	Méthodes du coût — cost approach to valuation: land value, replacement cost, depreciation analysis	14 lecture decks, 3 practical assignments, Québec real-estate market report

Lecturer — Université Laval (2021 – Present)

CODE	COURSE	LEVEL	TERMS
GSF-3100	Capital Markets	Undergraduate	F2021, W2021, F2022, W2023
GSF-6053	Financial Econometrics I	Graduate	W2022, W2025
GSF-1500	Financial Management	Undergraduate	S2022
GSF-6028	Financial Theory	Graduate	W2024

Complete open course material on GitHub — LaTeX Beamer slides (13 GSF-3100 decks; 11 GSF-6053 session decks + Stata labs), and the full GSF-6053 W2025 edition: lecture slides, 11 sets of typed notes, 7 formal proofs, and 14 exercise sets with complete solutions.

Teaching Assistant — Université Laval (2018 – 2021)

CODE	COURSE
GSF-2101	Portfolio Management
GSF-2102	Corporate Finance
GSF-6008	Corporate Finance (graduate)
GSF-6025	Financial Strategies & Policies I
GSF-6028	Financial Theory

SOFTWARE — NATIVE MACOS APPLICATIONS

Zyquo Cloud — native macOS chat client supporting multiple AI providers (Anthropic, OpenAI, and more) in a single unified...
git.spboucher.ai/zyquo-cloud

Zyquo Local — run large language models entirely on-device with Apple MLX
git.spboucher.ai/zyquo-local

Zyquo Agent — an autonomous AI agent that can act on your Mac: tool calling, task automation, and multi-step workflows
git.spboucher.ai/zyquo-agent

Zyquo Atlas — a web browser built around AI from the ground up: page understanding, summarization, and assisted browsing
git.spboucher.ai/zyquo-atlas

Zyquo MLX — fine-tune and quantize models directly on Apple Silicon: LoRA/QLoRA fine-tuning, quantization, and model...
git.spboucher.ai/zyquo-mlx

Zyquo Router — a local gateway that routes requests across LLM providers and local models through a single unified endpoint
git.spboucher.ai/zyquo-router

OS Vault — self-custody multi-chain crypto wallet for macOS — one phrase, six chain families (11 EVM chains, Bitcoin,...
git.spboucher.ai/os-vault

Metrika — stata-class statistics for macOS, GPU-accelerated by Apple Silicon — native Swift 6, DuckDB engine, MLX/Metal...
git.spboucher.ai/metrika

Forge Studio — native macOS cockpit for the Forge LLM training framework — SwiftUI dashboard with live loss charts, run...
git.spboucher.ai/forge-studio

SOFTWARE — WEB PLATFORMS & OPEN SOURCE

VQuant — claude-powered financial analysis platform: 265+ market-data endpoints, a quantitative Python engine (Monte...
www.vquant.ai

AI Risk Index — the transparent, task-based AI job-exposure index — 923 occupations scored from 18,796 O*NET tasks by a...
www.airiskindex.io

CoinExplorer — self-hosted blockchain explorer for stablecoins and major crypto — 24 chains, free public RPCs only, zero API...
www.coinexplorer.io

LLM Index — discriminative, contamination-resistant, live LLM ranking — IRT 2PL and Bradley–Terry scoring across 12...
www.llmindex.io

Lou-Ka — independent rental-listing aggregator for Quebec: one dedicated connector per property manager normalizes...
www.lou-ka.com

Vrai-Prix — a no-black-box property valuation engine covering 3.7 million Quebec properties and 745,119 real sales —...
www.vrai-prix.com

ValoPlex — quebec's specialized plex valuation engine: 393,867 multi-unit buildings and 1.7 million doors valued with a...
www.valoplex.com

QHPI — a production-grade economic-measurement platform computing hedonic, hierarchically pooled housing price...
www.indexqc.house

HF Market Data — an open high-frequency market data platform: a full-history FirstRate downloader, a 26.5-billion-row...
www.hfmarketdata.io

HFChart — a high-frequency financial charting platform where every pixel is drawn by hand on a 2D canvas — 14 chart...
www.hfchart.io

Tendril — a scrape-and-map API running on a residential Mac in real WebKit — Safari's actual engine — with fully...
www.ten-dril.com

KHAELOR — a terminal-native autonomous coding agent that designs before it implements and verifies before it claims...
www.khaelor.sh

SPB Git — a complete, self-hosted GitHub equivalent built for a single owner: streamed Git Smart HTTP hosting, a...
git.spboucher.ai

SPB Drive — a self-hosted Google Drive / Dropbox replacement for one person: content-addressed storage with free dedup, a...
drive.spboucher.ai

SVGarden — a static-first library of 74 self-contained SVG + CSS animations across 14 categories, each with a live...
www.svgarden.dev

Forge — LLM training from scratch in pure C++20 + Metal on Apple Silicon — no PyTorch, no MLX, no ML dependencies
git.spboucher.ai/forge

AIR — LLVM-style compiler infrastructure for accounting: LLMs emit economic events, a deterministic compiler...
git.spboucher.ai/air

Ultra-Sharp Agent Skills — research-first skill-authoring system plus 72 production-ready SKILL.md skills for AI agents — documents,...
git.spboucher.ai/ultra-sharp-agent-skills

Neural Networks Book — artificial Neural Networks — Methods, Equations and Graphical Representations
git.spboucher.ai/artificial-neural-networks-book

Zyquo Cloud Web — multi-provider AI chat (12 providers, 170 models) that runs entirely in your browser
www.zyquo.cloud

PhD Thesis — phD thesis (Université Laval) — Three Essays on High-Frequency Return and Volatility Dynamics in Commodities...
git.spboucher.ai/phd_thesis

UQO Course Material — course material for UQO — Éléments d'évaluation immobilière (IMM1003) and Méthodes du coût (IMM1033): Beamer...
git.spboucher.ai/uqo_cours_public

spboucher.ai — the source of this very site — Next.js 16 App Router, Tailwind CSS v4, shadcn/ui, and Framer Motion, with...
www.spboucher.ai

TECHNICAL SKILLS

LANGUAGES & FRAMEWORKS

Python · TypeScript/JavaScript · R · MATLAB · SAS/STATA · SQL · Julia · C++ · Swift/SwiftUI · LaTeX · React/Next.js · Node.js · FastAPI · Flask · Streamlit · Tailwind CSS · shadcn/ui · Framer Motion

DATA & ECONOMETRICS

Pandas · NumPy · statsmodels · scikit-learn · VAR · BVAR · HAR · GARCH · DCC-GARCH · Event studies · High-frequency analysis · Realized volatility · Hedonic models · Quantile regression · XGBoost + SHAP · FRED · FMP · EODHD · Yahoo Finance · World Bank · IMF · OECD

AI, LLMS & AGENTS

Claude/Anthropic SDK · OpenAI API · OpenRouter · Vercel AI SDK · Ollama · llama.cpp · GGUF · MLX · Hugging Face · Embeddings · RAG · Vector databases · Tool-augmented agents · LoRA · QLoRA · SFT fine-tuning