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Jean-Christophe Raymond-Bertrand

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Education

Virginia Tech Aug 2025 – May 2030
PhD in Industrial Engineering (Operations Research) (expected)

- GPA: 3.88/4.0, Advised by Dr. Rohit Kannan

Experience

Graduate Research Assistant — Operations Research *Blacksburg, VA*
Virginia Tech Aug 2025 – Present

- Developing stochastic optimization models for dispatching mobile power sources under hurricane forecast uncertainty, directly informing grid resilience decision-making for utility operators.
- Implemented SDDIP and MILP formulations in Julia, solved them on computing cluster using Slurm.

Undergraduate Researcher — OR & Network Optimization Urbana, IL
University of Illinois Industrial & Systems Engineering Jan 2024 – May 2025

- Built and solved mixed-integer optimization models in Python/GurobiPy analyzing automated traffic enforcement impacts on 800+ Chicago census tracts; achieved 700× runtime improvement through model reformulation and warm-starting.
- Modeled city-scale street networks with OSMNX/NetworkX and performed spatial joins across GIS layers using GeoPandas; results presented at IISE 2025 (OR Undergraduate Research Award).
- Applied regression models to quantify equity impacts while controlling for socioeconomic covariates.

Lead Full-Stack Developer & Technical Lead Urbana, IL
University of Illinois — Reference Pages July 2024 – May 2025

- Main developer and Technical Lead for grant-funded open educational platform; designed responsive UI with Astro Javascript framework and content pipeline serving thousands of engineering students across 6 departments.
- Instrumented site with Google Analytics; analyzed usage data to prioritize feature roadmap and measure student engagement, published results in 2025 ASEE Proceedings.

Fire Safety Engineering Intern Paris, France
Ingérop May 2023 – July 2023

- Ran CFD fire-safety simulations (PyroSim/FDS) for two major subway stations in the $40B Grand Paris infrastructure project, the largest infrastructure project in Europe.
- Developed internal tooling: built a Flask/JS web UI and REST API for a pressure-wave simulation program.

Selected Projects & Research

Automated backend server stress testing simulation *2025*

- Worked with Genfare to develop a stress-testing tool for their device onboarding and transaction processing backend process; used Python/Flask/JS for the dashboard, and Docker/GRPC/Websockets for mass deployment and communication with swarm of mock fare-collection devices.

Skills & Abilities

Technical:

- Python (NumPy, Pandas, GurobiPy, NetworkX, Flask), SQL, C++, Julia (JuMP, Powermodels, SDDP.jl).
- JavaScript, HTML, CSS, Astro Framework.
- Bash, Slurm, Linux (RHEL & Debian), Git, Docker & Docker Compose.
- Google Cloud (App Engine, Cloud Run, Storage, Build) & Firebase.

Languages:

- French — Native
- Czech — Native
- English — Fluent