



CHARLES VIELZEUF



📍 27 rue Raymond Marcheron Vanves 92170, France
✉ charles.vielzeuf@enpc.fr 🌐 charles-vzf.eu linkedin.com/charles-vzf github.com/charles-vzf

PROFESSIONAL EXPERIENCE

RIKEN - Advanced Intelligence Project

April 2025 – August 2025 & March 2026 – August 2026

Trainee student in the Deep Learning (DL) theory team & Statistical Genetics Team

University of Tokyo & Nihombashi

- Interpretability of embeddings of clinical patient trajectories from Neural ODE-augmented transformers, including mapping to MDP distributions and reinforcement learning benchmarks for clinical decision making
- Improving prediction of long-range enhancer-promoter interactions in DNA sequences using genome language models
- Working on a proof and experimental validation for propagation of chaos in the meanfield underdamped regime, under Prof. T. Suzuki

HEXALY

July 2023 – February 2024

Operations research intern – <https://www.hexaly.com/about>

Paris 17^{ème}

- Implementation of optimization algorithms for local search, rounds of vehicles, scheduling, and mathematical programming
- Modeling and solving industrial problems with *Hexaly* mathematical optimization solver and performance analysis

VINCI Construction

June – July 2023

Worker Internship (IPPEX – Professional Immersion in Executor Position)

Saclay

- Integration into a team working on the roads and highways maintenance on the *Lumen Learning Center* site
- Discovery of *Eurovia*'s technical management & expertise laboratory and of a concrete manufacturing plant

EDUCATION

Parisian Master of Operations Research

September 2025 – March 2026

Advanced studies in optimization and operations research – Institut Polytechnique de Paris

Paris

- | | | |
|----------------------------|--|-----------------------------------|
| . Graph optimization | . Reinforcement learning | . Waiting lines, stock management |
| . Mathematical programming | . Deep learning for combinatorial optimization | . High-performance computing |
| . Metaheuristics | . Stochastic optimization | . Complexity theory |

École nationale des Ponts et Chaussées

2022 – 2025

Engineering student - Department of mathematical engineering and computer science

Paris

- | | | | | |
|--------------------|-----------------------|--|---------------------------------|---|
| . Machine learning | . Numerical analysis | . Control of dynamic systems | . Quantum mechanics | . Fluid mechanics and materials physics |
| . Deep learning | . Convex optimization | . Analysis of partial differential equations | . Statistical physics | |
| . Computer vision | . Finite elements | | . Mechanics of continuous media | |

MPSI-MP preparatory program

2020 – 2022

Two-year program focused on general concepts in mathematics, physics, and engineering

Lycée Michelet, Vanves (Paris)

C.N. Ledoux High school

2018 – 2020

European English class; scientific baccalaureate with high honors

Besançon

PROJECTS

Full-stack web development project | *Freelance contract with complete documentation and now in production*

January 2024 – July 2024

- Development of a complete web application from scratch including backend, frontend, and database design, payments
- data privacy protection, and secure data management systems, serving more than 100 users

First and second year projects | *École des Ponts ParisTech*

January 2023 – June 2024

- Combination of simulation and learning for gas storage refuelling (with a R&D team at *Air Liquide*)
- **Research program** – Differential and Riemannian geometry: application to quantum mechanics, under Prof. E. Cancès

Creation of a textile printing startup | *t-start*

September 2023 – June 2024

- Co-founder after acquisition of the *National Status Student Entrepreneur* and management of technical processes

TIPE Supervised self-initiative work | *Lycée Michelet*

December 2020 – July 2022

- Modeling granular media using cellular automata: theory and applications

SKILLS & INTERESTS

Languages spoken: French (native), English (fluent - TOEIC: 940/990), Japanese (started intensively one year ago), German (B1)

Programming languages: Python, C++, C#, Julia, Java, R, SQL

Sports: triathlon, handball, diving (N2 diving certificate by the FFESSM), boxing, climbing

French First Aid Certifications: Workplace First Aid (SST) and Basic Life Support (PSC1)

Permit B: holder since June 2020

Internship at SYBERT (December 2018): Discovery of a waste treatment centre and the different technical skills of sorting lines

Entrepreneurship involvement: Communication and logistics manager at Génius Ponts (school entrepreneurship association)

Volunteering: Lecturer and music equipment manager at Décibel, managing lessons coordination and occasional guitar teacher