Deo Gratias Loutou

Computer Science Master's Student • Aiming for a PhD in data science and optimisation
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Portfolio: deogratias-loutou.fr | github.com/LDGKM

Research Interests

Learning uncertainty from data and using it in decisions (prediction intervals, optimisation under uncertainty); statistical analysis of public health and mobility data; simulation of complex systems. Looking for an **R&D or research work-study position (alternance) for 2027–2028**, or an internship from May 2027, as a step towards a PhD.

Education

Master's in Computer Science (M1) | *Université de Haute-Alsace, Mulhouse* 2026 – present
Computing & Mobility track. Courses: optimisation, computational geometry, parallel computing, mobile networks, human-computer interaction.

Bachelor's in Computer Science (Licence 3) | *Université de Haute-Alsace, Mulhouse* 2025 – 2026

Information Security studies (L1 – L3) | *IFRI, University of Abomey-Calavi, Benin* 2022 – 2025

Research-Oriented Projects

From Data to Robust Surgery Schedules | *solo, Python / HiGHS* Oct 2026
- Learned the uncertainty of surgery duration on 6,385 open VitalDB cases (quantile regression, conformal prediction, CQR), with coverage checked per surgical context over 10 splits.
- Used the learned quantiles in a mixed-integer OR scheduling model (set packing, HiGHS): overtime cut from 113 to 19 min per room-day; a budgeted robust model proved over-conservative.

Membrana: Emergent Endosymbiosis in Artificial Life | *solo, C++20 / OpenMP / Qt* Oct 2026
- Can endosymbiosis emerge without a rule forcing it? Ablation campaigns (5 conditions × 5 seeds, one law removed at a time) analysed in Python; mass conservation verified by tests (relative error $\sim 10^{-13}$).

NSGA-III: Study of a Published Algorithm | *team of 4, C++* Sep – Nov 2026
- Explained normalisation and reference-point association (Deb & Jain, 2014) in the paper, the code and the results; ran DTLZ/ZDT benchmarks and found a set-up error that made ZDT1 far too easy.

Open-Data Studies: Road Accidents, Medicines | *solo, Python / SQL* Oct 2026
- 310,000 accidents validated against official figures, logistic regression of fatal outcomes, a recording bias found in police data; €160 bn of reimbursed medicines with entity resolution and age standardisation.

Synthetic Labelled Images for Damage Assessment | *solo, Unity / C#* Sep – Oct 2026
- 3D Mulhouse generated from IGN open data; simulated earthquakes produce before/after aerial views with pixel labels in 11 damage classes, as training data for damage-detection models.

Code, notebooks and reports: github.com/LDGKM | deogratias-loutou.fr

Skills

Methods	Conformal prediction, quantile regression, gradient boosting, mixed-integer programming, multi-objective optimisation, simulation
Programming	Python (pandas, scikit-learn, SciPy/HiGHS, statsmodels), SQL (DuckDB), C++ (OpenMP), C#, Git, LaTeX; HL7 FHIR basics
Languages	French (native), English (B2, upper intermediate)

Experience

Web Developer & Analyst Intern | *PetitAvis, Feucherolles, France* Jun – Aug 2026
- Restructured a 50+ table production MySQL schema (48 migrations) without losing data; built the first dashboard comparing compliance statistics across childcare facilities.

IT & Network Technician Intern | *JASPE Technologies, Benin* 2024 – 2025