

Samuel Vangu Matondo

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Education

Université Grenoble Alpes (UGA), France <i>Bachelor's Degree in Computer Science and Mathematics</i>	Sep. 2025 – Present <i>First-Year Average: 19.141/20 Ranked 1st out of 234 students</i>
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Experience

Research Intern – DAO Team (Data, Learning and Optimization), LJK Lab <i>Grenoble, France</i>	May 2026 – July 2026
- Developed a Python library for Monte Carlo and quasi-Monte Carlo methods in numerical integration, including sampling algorithms, statistical analysis, and experimental benchmarking. - Reproduced and analyzed experiments from the research paper “Optimal Transport for Domain Adaptation” (Courty et al., 2015), studying optimal transport applications in machine learning domain adaptation. - Contributed to the open-source Julia ecosystem through a pull request to OptimalTransport.jl, an optimal transport library. - Studied research literature on Monte Carlo methods, quasi-Monte Carlo integration, optimal transport theory, and their applications in machine learning. <i>Supervised by Quoc-Tung Le and Matthieu Besançon</i>	

Projects

QMCLib – Monte Carlo and Quasi-Monte Carlo Library <i>Python, NumPy, SciPy, Matplotlib, Pyperf</i>	May 2026 – July 2026
- Developed an open-source Python library implementing Monte Carlo and quasi-Monte Carlo algorithms for numerical integration, including Uniform sampling, Latin Hypercube Sampling, Halton, Sobol, and lattice-based methods. - Designed a modular framework for sampling methods, statistical analysis, convergence evaluation, and performance benchmarking of numerical integration algorithms. - Validated implementations through numerical experiments and comparative benchmarks against established quasi-Monte Carlo libraries. - Applied quasi-Monte Carlo techniques to a machine learning risk estimation problem, exploring their potential for high-dimensional integration tasks.	

Technical Skills

Programming: Python, C
Machine Learning & Scientific Computing: PyTorch, NumPy, SciPy, pandas, Matplotlib, scikit-learn
Research Tools: LaTeX, Jupyter Notebook
Development Tools: Git, GitHub, Linux, VS Code

Awards & Distinctions

National Excellentia Scholarship Competition – 2nd Place <i>Ranked 2nd nationwide in the Excellentia Excellence Scholarship selection process, Democratic Republic of the Congo</i>	2025
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Languages

French: Native proficiency
English: Professional working proficiency