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Vladimir Williams

Curriculum Vitae

Nationality: *American (authorized to work in France, naturalization in progress)*

Former academic researcher with a PhD in physics and extensive experience in **data analysis**, **applied statistics**, **neural networks & AI**, **scientific computing**, **algorithm development**, and implementation of **data pipelines**. Proficient in designing and conducting **numerical experiments** using **Python/C++**. Proven track record of leading interdisciplinary, data-driven projects and translating technical results into persuasive, accessible narratives for non-experts. Certified educator with pedagogical training and proven classroom experience. Deeply motivated to leverage data and scientific approaches across sectors.

Technical Skills

Data Analysis & Statistics: Python (pandas, numpy, scipy, scikit-learn, statsmodels), C++, SQL, time series analysis, A/B testing, regression analysis, experimental design, Monte Carlo methods, hypothesis testing, MATLAB, Mathematica

Data Engineering & Pipelines: data structures, algorithm development, ETL/ELT pipeline development, Bash scripting, data integration from multiple sources, workflow automation, Git/GitHub, AWS, Azure

Data Visualization & BI: Matplotlib, Seaborn, Plotly, Power BI/Excel/Sheets

Languages: English (native), French (B1, progressing to B2/C1), Spanish (native)

Other: Agile methods, CI/CD, unit testing, Product Lifecycle Management (PLM), 3DExperience, cross-functional collaboration, privacy/GDPR awareness, technical communication, web development, grant writing

Experience

Innovation Funding Expert, *Da Vinci Labs (Tours, France).* **2026–present**

- Performed a **comparison study** on AI evaluation of EU grant proposals,
- Developed AI-powered automations using **Python** and Google's **Gemini SDK**, resulting in a 2-hr reduction in work time/grant
- Drafted EU Commission grant proposals, built and coordinated consortia, edited and quality checked proposal drafts

Associate Products & Systems/Digital Engineer, *Capgemini Engineering (Paris, France).* **2023–2026**

- Evaluated performance of **GenAI** models in unit test generation using **Python**
- Characterized code complexity in terms of **cyclomatic and Kolmogorov complexity** using **Python**
- Quantified data file complexity using **Shannon entropy**, **fractal dimension** in **Python**
- Designed subsystems for a prototypical **LH2 fuel cell powered plane**, predicted **evaporation rates** using **Modelica**
- Designed report templates for displaying data in **3DExperience** using **SQL** and **OTScript**
- Implemented an **FMI pipeline** between **Dymola** and **Simulink**

Invited Researcher, *Université de Tours, Institut Denis Poisson (Tours, France).* **2020–2022**

- Led a study on the **chaotic properties of artificial neural networks**
- Wrote **numerical simulations** and **Monte Carlo experiments** in **C++**
- Implemented a data pipeline to remote computing clusters using **Bash**
- Created data visualizations in **Mathematica**, **Python**, and **MATLAB**
- Published **3 peer-reviewed articles**. Funded by **CNRS grant N° 1029456**.

Postdoctoral Associate, *University of Pittsburgh (Pittsburgh, Pennsylvania).* **2016–2019**

- Led the development of a novel algorithm for **causal inference** based on **multi-dimensional stochastic timeseries data**
- Algorithm implemented in **MATLAB** with data visualizations in **Python**
- Published **1 peer-reviewed article**. Funded by an **NIH T32 National Research Service Award** (NRSA).

Education

POEI, Développeur PLM 3DExperience, *M2i Formation*, **2023**
Agile, SQL, Java, HTML/CSS/Javascript, Visual Studio, 3DExperience, Docker.

PhD, Physics, *Indiana University Bloomington*, **2010–2016**
Thesis : "Phase Transitions in Living Neural Networks".

MS, Physics, *Indiana University Bloomington*, **2008–2010**
Concentration : statistical physics and mathematical physics.

BS, Physics, *University of California Los Angeles*. **2003–2006**

Publications

Five peer-reviewed research articles, available on ORCID: 0000-0002-7596-5101