Alexander Lanine

Curriculum Vitae

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Professional Summary

Aspiring researcher in cognitive science with expertise in computational modeling and mathematics. Skilled in neural data analysis, machine learning techniques, and probabilistic modeling, with strong academic achievements and extensive research experience. Actively seeking PhD positions in computational cognitive science.

Education

Present — **Master of Science in Cognitive Science**, *École Normale Supérieure - PSL*, France, Specializing in Mathematical and Computational Modeling
M1 Level: 19,00/20,00

May 2023 — **Bachelor of Science, Honours Mathematics with Distinction (summa cum laude)**, *University of Victoria*, Canada
Overall GPA: 3.87/4; Mathematics GPA: 4.00/4

Work Experience

Feb 2024 – Present — **Research Intern**, *Group for Neural Theory, École Normale Supérieure*
Implemented novel slice-tensor decomposition methods for dimensionality reduction in artificial and biological neural data. Trained RNNs and applied formal mathematical techniques to analyze dynamics.

Sept 2023 – June 2024 — **Research Intern**, *Institut Jean Nicod, École Normale Supérieure*
Investigated non-classical probability theories to model uncertainty semantics and probabilistic judgments. Developed applications for decision science to capture behavior related to illusory inferences.

Jan 2021 – Present — **Private Tutor**, *Self-Employed*
Provided advanced tutoring in Pre-Calculus, Calculus, Statistics, Linear Algebra, Combinatorics, Logic, and Physics. Presently specializing in tutoring Mathematics for Machine Learning.

May 2023 – Aug 2023 — **Undergraduate Researcher (NSERC Funded)**, *Department of Mathematics and Statistics, University of Victoria*
Researched generalizations of continuous logic for applications to functional analysis.

May 2021 – Aug 2021 — **Undergraduate Researcher (NSERC Funded)**, Department of Mathematics and Statistics, University of Victoria
Conducted simulations of Rayleigh-Bénard convection on Compute Canada supercomputers. Analyzed scaling laws using Python and computational fluid dynamics methods.

Sept 2020 – April 2022 **Tutor**, *Math and Stats Assistance Centre, University of Victoria*
Assisted undergraduate students with first- and second-year mathematics and statistics courses through drop-in sessions, providing tailored explanations and problem-solving strategies. Led exam review sessions for large groups of up to 250 students. Promoted to Head Tutor (Fall 2021), taking on responsibilities such as training new tutors and analyzing centre usage data to improve operational efficiency and student support.

Academic Awards

2023 **France Excelence Scholarship**, *Awarded by Campus France and Canadian Embassy to France*, Full-tuition scholarship awarded to top Canadian students pursuing graduate studies in France.

2021, 2022, 2023 **NSERC Undergraduate Research Award**, *Awarded by Natural Sciences and Engineering Research Council of Canada*, Competitive Canadian Research Grant. Awarded three times. Declined in 2022 due to extenuating circumstances.

2021 **Corbett Scholar**, *University of Washington*, Competitive exchange scholarship program aimed at promoting cultural and academic exchange between Canada and the United States in the Pacific Northwest (conducted virtually due to COVID-19).

2020 **Fulbright's Killam Fellowship**, *Fulbright Canada*, Prestigious exchange program award (deferred due to COVID-19).

2019-2023 **Additional Awards**, *Leeder Family Memorial Award in Mathematics, J.B. Wood Book Prize, Jamie Casseles Undergraduate Research Award, Melva J. Hanson Scholarship, etc.*

Technical Skills

Programming	Python, PyTorch, C, R, Bash/Z Shell, SQL
Data Science	NumPy, pandas, scikit-learn, Matplotlib, SciPy
AI and ML	Neural network modeling, dimensionality reduction, reinforcement learning
Languages	English (native), French (limited working proficiency)
Other	High-performance computing, parallel computing (MPI), LaTeX

Extracurricular and Leadership Activities

July 2024 - Present **AI and Cognitive Science Group Organizer**
Facilitated biweekly discussions on AI and cognitive modeling. Led a collaborative project to build a GPT model from scratch, engaging peers in hands-on learning. Presented research papers on mechanistic interpretability.

Summer 2023 **Journal Club Leader in Philosophy of Mathematics**
Organized a journal club with advanced undergraduate and graduate students at the University of Victoria. Arranged one talk by a faculty member.

2019-2021 **Philosophy of Mind and Language Reading Group**
Organized a small interdisciplinary reading group focused on reading major works in the science and philosophy of mind and language.