

SOKHNA DIARRA MBACKE

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Google Scholar, Github, LinkedIn

EDUCATION

PhD in Computer Science <i>Deep Generative Models, PAC-Bayesian Theory</i> Université Laval	September 2021 - Present
Master of Science in Computer Science (Honour List) <i>Domain Semirings and Kleene Algebras with Domain</i> Université Laval	January 2017 - August 2018
Bachelor of Science in Mathematics and Computer Science Université Laval	January 2014 - December 2016

PUBLICATIONS

A Note on the Convergence of Denoising Diffusion Probabilistic Models <i>Transactions on Machine Learning Research (TMLR) 2024</i> Sokhna Diarra Mbacke, Omar Rivasplata
Statistical Guarantees for Variational Autoencoders using PAC-Bayesian Theory <i>Neural Information Processing Systems (NeurIPS) 2023, Spotlight</i> Sokhna Diarra Mbacke, Florence Clerc, Pascal Germain
PAC-Bayesian Generalization Bounds for Adversarial Generative Models <i>International Conference on Machine Learning (ICML) 2023</i> Sokhna Diarra Mbacke, Florence Clerc, Pascal Germain
Completeness for Domain Semirings and Star-Continuous Kleene Algebras with Domain <i>Master's Thesis</i> Sokhna Diarra Mbacke

SKILLS

Languages	English (Fluent), French (Fluent)
Computer Languages	Python, C/C++, Java, MATLAB, Latex
ML Libraries	Pytorch, Numpy, Pandas, Scikit-Learn, etc
Computer Science	Deep Learning, Generative Models (VAEs, GANs), Learning Theory, Design and Analysis of Algorithms, Formal logic, Static Program Analysis

WORK EXPERIENCE

DevOps Software Engineer <i>IGM Financial, FDM</i>	November 2018 - April 2021 Toronto
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- Software development.
- Building and implementation of new development tools.
- Admin and maintenance of existing tools and servers.

University Lecturer
Université Laval

September 2019 - December 2020
Quebec City

- **Course:** Mathematical Logic and Proof techniques.
- Prepare course material and conceive exams.
- Give formal lectures and grade exams.
- Provide feedback and support for students.

Agile Researcher
Industrielle Alliance (IA Financial Group)

May 2018 - November 2018
Quebec City

- Conduct research in Agile methods and frameworks.
- Produce reports including academic findings and case studies.
- Consult and counsel managers about ways to implement and scale Agile methods.

Computer Science Research Intern
Computer Research Institute of Montreal (CRIM)

May 2015 - August 2015
Montreal

- Academic research in the field of static program analysis and automated testing.
- Conception and implementation of a C language code slicing software.
- Software testing and extensive documentation redaction.

Teaching assistant
Université Laval

Sept. 2014 - Aug. 2018; Sept. 2021 - Present
Quebec City

- Conduct tutorials and labs.
- Mark assignments and tests.
- Provide feedback. Make constructive comments on the work of students.

ACADEMIC ACHIEVEMENTS

Honour List for excellence of Master's thesis (Université Laval, 2018)

National Mathematical Olympiads Silver medalist (Senegal 2013)

Recipient of a 75 000 CAD scholarship in 2013

VOLUNTEER WORK

Member of the Diversity and Inclusion Committee of the Institute Intelligence And Data (IID), Université Laval