

Younesse Kaddar

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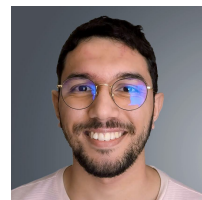
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Education

- 2020–present **DPhil in Computer Science**, *University of Oxford*, UK,
Scholarship : Oxford-DeepMind, *College* : Christ Church
Teaching and tutoring : Principles of Programming Languages, Bayesian Statistical Probabilistic Programming
- 2019–2020 **Visiting researcher (Predoctoral research year) supervised by Marcelo Fiore**, *University of Cambridge*,
Department of Computer Science and Technology, UK
- 2018–2019 **Parisian Master of Research in Computer Science (MPRI) : 2nd year (M2R), Master of Research (MRes)**, *École Normale Supérieure Paris-Saclay*, Paris, *Honors* : Summa cum laude
- 2017–2018 **Parisian Master of Research in Computer Science (MPRI) : 1st year (M1), Master of Science (MSc)**, *École Normale Supérieure Paris-Saclay*, Cachan / Paris
Overall rank : 1st (out of 27)
Courses : Category theory & λ -calculus, Advanced Complexity, Statistical Learning, Computer Vision, Robot Motion Planning, Initiation to Research, English. *Extra courses* : Proof assistants (LMFI Master, at Paris-Diderot), Modules and finite groups (Math Master at Ecole Polytechnique)
- Research Master in Cognitive Science (Cogmaster)**, *École Normale Supérieure Paris*, Paris
Courses : Computational Neuroscience, Neuromodeling, Neurorobotics, Machine Learning applied to Neuroscience
- 2016–2017 **Bachelor of Computer Science**, *École Normale Supérieure Paris-Saclay*, Cachan
Overall rank : 1st (out of 28)
Courses : λ -calculus & Logic, Logic Projects (DPLL algorithm & Coq project), Discrete Mathematics, Programming & Semantics, Advanced Programming, Compiler Project, Formal Languages, Computability & Complexity, Algorithmics, Advanced Algorithms, Algebra, English, Computer Architecture
- 2013–2016 **Classes Préparatoires aux Grandes Écoles**, *Lycée Henri Poincaré*, Nancy
MPSI–MP* : Preparatory courses to nationwide competitive exams in mathematics, physics and computer science
- 2012–2013 **Baccalauréat S**, *Lycée Henri Poincaré*, Nancy, major in mathematics, *with highest honors*

Research Experience

- 2025 **Uncertainty-Aware Step-wise Verification with Generative Reward Models**
Authors : Z. Ye, L. C. Melo, Y. Kaddar, P. Blunsom, S. Staton, Y. Gal
Publication : Preprint 2025
Link : <https://arxiv.org/abs/2502.11250>
- 2024 **Can a Bayesian Oracle Prevent Harm from an Agent ?**
Authors : Y. Bengio, M. K. Cohen, N. Malkin, M. MacDermott, D. Fornasiere, P. Greiner, Y. Kaddar
Publication : Preprint 2024
Link : <https://arxiv.org/abs/2408.05284>
- 2024 **Panelist at PADL 2024 (POPL workshop)**
Topic : Declarative Languages for Safe AI
Chair : Ekaterina Komendantskaya (Heriot-Watt University & University of Southampton)
Panelists : Gopal Gupta (University of Texas at Dallas), Claudia Faggian (Université de Paris & CNRS), Wen Kokke (University of Edinburgh), Alessandro Bruni (IT University of Copenhagen), Younesse Kaddar (University of Oxford)
Link : <https://popl24.sigplan.org/home/PADL-2024>
Video : <https://www.youtube.com/live/UDLxVLq1uGk?si=RA0InzW3toeok91d&t=27385>
- 2024 **Amortizing Intractable Inference in Large Language Models**
Authors : E. J. Hu, M. Jain, E. Elmoznino, Y. Kaddar, G. Lajoie, Y. Bengio, N. Malkin
Publication : Accepted at International Conference on Learning Representations (ICLR) 2024, *Honorable Mention*
Link : <https://arxiv.org/abs/2310.04363>
Code : <https://github.com/GFN0rg/gfn-lm-tuning>

- 2024 **Probabilistic programming interfaces for random graphs : Markov categories, graphons, and nominal sets**
Authors : N. Ackerman, C. Freer, Y. Kaddar, J. Karwowski, S. Moss, D. Roy, S. Staton, H. Yang
Publication : Accepted at Principles of Programming Languages (POPL 2024)
Link : <https://younesse.net/assets/popl2024.pdf> **DOI** : <https://doi.org/10.1145/3632903>
- 2023 **A model of stochastic memoization and name generation in probabilistic programming : categorical semantics via monads on presheaf categories**
Authors : Y. Kaddar and S. Staton
Publication : Accepted at Mathematical Foundations of Programming Semantics (MFPS) 2023
Link : <https://younesse.net/assets/mfps2023.pdf>
Slides : https://younesse.net/assets/kaddar_mfps2023.pdf
- 2023 **Affine monads and lazy structures for Bayesian programming**
Authors : S. Dash, Y. Kaddar, H. Paquet and S. Staton
Publication : Accepted for 50th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2023)
Link : <https://dl.acm.org/doi/10.1145/3571239>
- Sep. 2022 **Higher order programming with probabilistic effects : A model of stochastic memoization and name generation**
Authors : Younesse Kaddar and Sam Staton
Link : <https://www.youtube.com/watch?v=URN2UFGbbdU>
- Aug. 2022 **Statistical Programming with Categorical Measure Theory and LazyPPL (demo)**, *Applied Category Theory*
Authors : S. Dash, Y. Kaddar, H. Paquet and S. Staton
Links : https://msp.cis.strath.ac.uk/act2022/slides/ACT2022_slides_8887.pdf, <https://youtu.be/KsxKNzUnE6E?t=6764>

Entrepreneurship and Open Source

- 2023–present **RightPick**, *Cofounder & CTO*, <https://rightpick.app/>
Startup helping alumni from European universities find top jobs in tech, finance, and consulting. Listed on the Oxford University Careers website.
- 2021–present **LazyPPL**, *Co-maintainer*, <https://lazyppl-team.github.io/>
Haskell-based probabilistic programming library for Bayesian nonparametrics (Sam Staton's team)

Awards

- June 2023 **1st Prize & Impact Prize**, *Bio x ML Hackathon 2023*, HuggingFace, OpenBioML, Lux Capital & LatchBio, <https://hackathon.bio/>
Project : SVM : Generate unified protein embedding across multiple protein modalities.
<https://github.com/svm-ai/svm-hackathon>
<https://huggingface.co/BIOML-SVM>
- Nov. 2022 **1st Prize**, *OxfordHack 2022*, LENS Main Challenge, <https://devpost.com/software/checkyboty>
Project : CheckyBoty : idealised anonymous spoofing detection probabilistic model.
https://younesse.net/assets/hackathons/OxfordHack_2022/spoof_detection.html

Internships

- Jan. 2024 – **Cohere For AI Scholars Programme**, *Cohere*
Aug. 2024 **Mentor** : Beyza Ermiş
Research Topic : LLM Hallucinations
- June 2023 – **PhD Internship**, *Mila (Quebec Artificial Intelligence Institute)*, Université de Montréal, Montreal, Canada
Jan. 2024 **Supervisor** : Yoshua Bengio
Research Topic : GFlowNets for reasoning & AI safety
- Oct. 2019 – **Pre-doctoral Internship**, *University of Cambridge*, Department of Computer Science, Cambridge, UK
Aug. 2020 **Link** : https://younesse.net/assets/ARPE_report.pdf **Mark** : 18/20
Title : *Ideal Distributors*
Supervisor : Marcelo Fiore

- Apr.–Aug. **M2 Internship**, *Macquarie University*, Department of Mathematics and Statistics, Sydney, Australia
 2019 Link : <https://younesse.net/M2-report/> Mark : 18/20
Title : *Tricocycloids, Effect Monoids and Effectuses*
Supervisor : Richard Garner
- June–Aug. **M1 Internship**, *University of Oxford*, Department of Computer Science, Oxford, UK
 2018 Link : <https://younesse.net/M1-report/> Mark : 15.7/20
Title : *Event Structures as Presheaves*
Supervisor : Ohad Kammar
- June–Jul. **L3 Internship**, *University of Nottingham*, Functional Programming Laboratory, Nottingham, UK
 2017 Link : <https://younesse.net/L3-report/> Mark : 18/20
Title : *Type Theory forms a weak omega groupoid*
Supervisors : Thorsten Altenkirch, Paolo Capriotti, Nicolai Kraus

Teaching

- May 2023 **Topics in Minds and Machines : Perception, Cognition, and ChatGPT**, *Philosophy Seminar, University of Oxford*
Role : Lectured on Deep Learning and Large Language Models.
- Oct.–Dec. **Bayesian Statistical Probabilistic Programming class**, *University of Oxford*
 2022 **Role** : Class tutor and marker.
- May–Jun. **Imperative Programming in Scala III**, *University of Oxford*
 2022 **Role** : Demonstrator.
- Oct.–Dec. **Principles of Programming Languages class and Revision class**, *University of Oxford*
 2020, 2021 **Role** : Class tutor and marker, personal tutor (Exeter College).
- Jul. 2020, **Online Research Programme**, *Immerse Education*
 Dec. 2020, **Topics** : Bayesian probabilistic programming, Algorithms, Supervised learning.
 Jul. 2021
- 2017–2018 **Tutorial Teaching**, *ENS Paris-Saclay*
Subjects : Computability and Complexity Theory, Algorithms, Automata Theory, Formal Language Theory.

Additional Education and Training

- 2024 **AI Governance Reading Group**, *University of Oxford*
- June 2024 **Summer School in Neurosymbolic Programming**, Salem, MA, USA
- 2024 **AI Alignment Course**, *BlueDot Impact*, Online
- August 2023 **MIT Probabilistic Programming Mini School**, Online
- Jul. 2022 **CalTech Neurosymbolic Programming Summer School**, Pasadena, CA, USA
- Jun.–Jul. **Oregon Programming Languages Summer School**, Eugene, OR, USA
 2022

Programming Languages

- Advanced Python, Haskell, OCaml
- Intermediate Coq, Agda, Scala, PHP, HTML/CSS/JavaScript, React/ReactNative
- Basic Lean, Bash, Node.js, C/C++

Languages

- French First language
- English Fluent, Cambridge Certificate in Advanced English (Overall Score : 201/210) CEFR Level : C2
- German Basic CEFR Level : B2