

# Kimia Nadjahi

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## RESEARCH EXPERIENCE

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- CNRS and ENS** (Paris, France) Feb. 2024 – ongoing  
*Research faculty (permanent position)*  
CNRS researcher affiliated to the Computer Science department of ENS Paris
- Massachusetts Institute of Technology (MIT)** (Cambridge, USA) Dec. 2022 – Jan. 2024  
*Postdoctoral Fellowship Program for Engineering Excellence*  
Distinguished postdoctoral fellow in the Geometric Data Processing group, Computer Science and Artificial Intelligence Laboratory (CSAIL), MIT Department of Electrical Engineering and Computer Science.  
Supervised by Justin Solomon
- Sorbonne University** (Paris, France) Dec. 2021 – Dec. 2022  
*Postdoctoral Fellowship*  
Postdoctoral fellow within the *Laboratoire de Probabilités, Statistique et Modélisation* (LPSM). Supervised by Julie Josse and Claire Boyer
- Microsoft Research Lab** (Montréal, Canada) April 2018 – Aug. 2018  
*Internship*  
Research intern within the Reinforcement Learning team. Supervised by Romain Laroche and Rémi Tachet des Combes
- RIKEN Center for Advanced Intelligence Project** (Tokyo, Japan) April 2017 – Sept. 2017  
*Internship*  
Research intern within the Approximate Bayesian Inference team. Supervised by Emtiyaz Khan

## EDUCATION

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- Télécom Paris** (Institut Polytechnique de Paris, France) Oct. 2018 – Nov. 2021  
*PhD degree*
  - Supervised by Roland Badeau, Alain Durmus and Umut Şimşekli
  - Title: “Sliced-Wasserstein distance for large-scale machine learning: theory, methodology and extensions”
  - Keywords: computational optimal transport, approximate inference, deep generative modeling, large/high-dimensional data
- ENS Cachan** (Cachan, France) Sept. 2016 – Sept. 2017  
*MSc in Machine Learning and Computer Vision (MVA)*  
Master’s thesis: “Generalized matrix factorization using conjugate-computation variational inference”
- Ensimag** (Institut Polytechnique de Grenoble, France) Sept. 2013 – Aug. 2016  
*Engineer’s degree in Computer Science and Applied Mathematics*
- Lycée Saint-Louis** (Paris, France) Sept. 2011 – Aug. 2013  
*CPGE MPSI-MP*

**Preprints**

- [1] C. Bonet\*, **K. Nadjahi\***, T. Séjourné\*, K. Fatras, N. Courty. *Slicing Unbalanced Optimal Transport*. 2024 (under review)

**Proceedings of International Conferences**

- [2] J. Zhu, K. Greenewald, **K. Nadjahi**, H. Sáez de Ocáriz Borde, R. Brüel Gabrielsson, L. Choshen, M. Ghassemi, M. Yurochkin, J. Solomon. *Asymmetry in Low-Rank Adapters of Foundation Models*. ICML 2024
- [3] **K. Nadjahi**, K. Greenewald, R. Brüel Gabrielsson, J. Solomon. *Slicing Mutual Information Generalization Bounds for Neural Networks*. ICML 2024
- [4] A. Rakotomamonjy, **K. Nadjahi**, L. Ralaivola. *Federated Wasserstein Distance*. ICLR 2024.
- [5] R. Ohana\*, **K. Nadjahi\***, A. Rakotomamonjy, L. Ralaivola. *Shedding a PAC-Bayesian Light on Adaptive Sliced-Wasserstein Distances*. ICML 2023.
- [6] S. Kolouri, **K. Nadjahi**, S. Shahrampour, U. Şimşekli. *Generalized Sliced Probability Metrics*. IEEE ICASSP 2022.
- [7] **K. Nadjahi**, A. Durmus, P. E. Jacob, R. Badeau, U. Şimşekli. *Fast Approximation of the Sliced-Wasserstein Distance Using Concentration of Random Projections*. NeurIPS 2021.
- [8] **K. Nadjahi**, A. Durmus, L. Chizat, S. Kolouri, S. Shahrampour, U. Şimşekli. *Statistical and Topological Properties of Sliced Probability Divergences*. NeurIPS 2020. **Accepted as a spotlight presentation ( $\approx 3\%$  of all submissions: 280 spotlights out of 9454 submissions)**
- [9] **K. Nadjahi**, V. De Bortoli, A. Durmus, R. Badeau, U. Şimşekli. *Approximate Bayesian Computation with the Sliced-Wasserstein Distance*. IEEE ICASSP 2020.
- [10] **K. Nadjahi**, A. Durmus, U. Şimşekli, R. Badeau. *Asymptotic Guarantees for Learning Generative Models with the Sliced-Wasserstein Distance*. NeurIPS 2019. **Accepted as a spotlight presentation ( $\approx 2.5\%$  of all submissions: 164 spotlights out of 6743 submissions)**
- [11] S. Kolouri\*, **K. Nadjahi\***, U. Şimşekli, R. Badeau, G. K. Rohde. *Generalized Sliced Wasserstein Distances*. NeurIPS 2019.
- [12] **K. Nadjahi\***, R. Laroché\*, R. Tachet des Combes. *Safe Policy Improvement with Soft Baseline Bootstrapping*. ECML-PKDD 2019.

**Workshops**

- [13] Neural Compression workshop at ICML 2023 (Honolulu, Hawaii). **Contributed talk**, “*Slicing Mutual Information Generalization Bounds for Neural Networks*”
- [14] WiML workshop at NeurIPS 2019 (Vancouver, Canada). **Contributed talk** (8 contributed talks selected among  $\approx 600$  submissions), “*Asymptotic Guarantees for Learning Generative Models with the Sliced-Wasserstein Distance*”
- [15] European workshop on Reinforcement Learning 2018 (Lille, France). “*Soft Safe Policy Improvement with Baseline Bootstrapping*”
- [16] Safety, Risk and Uncertainty in Reinforcement Learning workshop at UAI 2018 (Monterey, USA). “*Soft Safe Policy Improvement with Baseline Bootstrapping*”

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**AWARDS AND GRANTS**

**MIT School of Engineering Postdoctoral Fellowship for Engineering Excellence** (Annual stipend of \$75 000 and additional funds of \$10 000 for conference travel and research expenses)

**Best Paper Award** at Neural Compression workshop (ICML 2023) for [13]

**IP Paris Best Thesis Award 2022, First Prize** (€3000 prize)

**Best Paper Award** at IEEE ICASSP 2022 for publication [6] (\$1500 prize)

**Best Reviewer (Top 10%)** for ICML 2021, awarded free registration to the conference

**Best Student Paper Award** at IEEE ICASSP 2020 for publication [9] (€1000 prize)

**Top 10% of high-scoring reviewers** for NeurIPS 2020, awarded free registration to the conference

**Travel grant (\$1120)** by Women in Machine Learning to present publication [10] at WiML Workshop 2019 (Vancouver, Canada)

**Travel grant (\$1400)** by NeurIPS to present publication [10] at NeurIPS 2019 (Vancouver, Canada)

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## TEACHING EXPERIENCE

### Télécom Paris

Oct. 2018 – Oct. 2021

*Teaching assistant*

- Basic Algebra, Basic Analysis, Analysis and Probability (MDI111–114, Bachelor): 12h
- Factorization-Based Data Analysis (DK917, Master): 9h
- Introduction to Graphical Models (DATA905, Master): 7h
- Optimization for Machine Learning (SD-TSIA211, Master): 18h
- Statistics: Linear models (SD-TSIA204, Master): 9h
- Statistics, Machine Learning and Linear Models (MDI720, Executive Master): 12h
- Time series, part 2 (TSIA202b, Master): 15h

### OpenClassrooms

Jan. 2018 – March 2018

*Freelance editor*

- Created the MOOC “How to process and classify image data” from scratch, in collaboration with Prof. Pascal Monasse (Imagine, ENPC)
- The online course is part of the “Data Scientist path” offered by OpenClassrooms in partnership with Centrale Supélec. It lasts 15h and features 3 chapters, 2 quizzes and 1 tutorial

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## SERVICES

Student Program and Funding Chair of WiML Workshop at NeurIPS 2022

Mentor at NeurIPS@Paris 2022

Reviewer for AISTATS (2020, 2021), NeurIPS (2020 – 2022), JMLR, WiML Workshop 2019

Expert reviewer for ICML 2021

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## SELECTED INVITED TALKS

*Learning and Optimization in Luminy* workshop at CIRM (Marseille, France), June 2024

*Optimal Transport: Theory and Applications* workshop at Institut d’Etudes Scientifiques de Cargèse (France), April 2024

HeKA team seminar, Inria Paris, Nov. 2022

Mokaplan team seminar, Inria Paris, Nov. 2022

MIND team seminar, Inria Saclay, July 2022

*Statistical and Geometric Divergences for Machine Learning* Research School, Mathematical Center Henri Lebesgue (Rennes, France), June 2022

*Journées de Statistique de la SFdS*, annual conference organized by the French Statistical Society (Lyon, France), June 2022

*Optimal Transport and Statistical Learning* workshop by GDR ISIS-MIA, Institut Henri Poincaré (Paris, France), Nov. 2021

*Causal Inference and Missing Data Group* team seminar, Inria, June 2021

SIERRA team seminar, ENS/Inria Paris, March 2021

*Paris Machine Learning Meetup*, Dec. 2020

*OxCSML* team seminar, University of Oxford, May 2020

*Data Science & AI for Digitalized Industry & Services Chair* seminar, Télécom Paris, Sept. 2019

## SKILLS

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### **Programming**

- Python (advanced use), C/C++, Java, Matlab, R.
- Open-source code available at <https://github.com/kimiandj>

### **Languages**

French (native), English (fluent, TOEIC 955/990), Spanish (conversant), Persian (reading, conversant)