

TrungTin Nguyen

Short Curriculum Vitae

Postdoctoral Research Fellow
The University of Queensland
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🔗 **Long CV Version,** November 6, 2024



Academic Appointment

- 2023–present **Postdoctoral Research Fellow**, *School of Mathematics and Physics, The University of Queensland*, Brisbane, Australia.
- 2022–2023 **Postdoctoral Research Fellow**, *Statify Team, Inria centre at the University Grenoble Alpes, MIAI Grenoble Alpes*, Grenoble, France.

Tertiary Education

- 2019–2022 **Doctor of Philosophy**, *Normandie Université*, Caen, France.
Major in Statistics and Data Science.
- 2017–2019 **Master of Science, Technology and Health**, *Université d'Orléans*, Orléans, France, GPA: 18/20.
Mention: *Très Bien*. Major in Applied Mathematics.
- 2013–2017 **Bachelor of Science**, *Vietnam National University-Ho Chi Minh University of Science (VNU-HCM)*, Ho Chi Minh City, Vietnam, GPA: 9.17/10. Rank: 2/1557, Summa Cum Laude.
Honors Program in Mathematics and Computer Science. Major in Probability and Statistics.

Research Interests

- Statistical learning** Model selection, simulation-based inference, Bayesian nonparametrics, high-dimensional statistics, uncertainty estimation, missing data.
- Machine learning** Supervised learning, unsupervised learning, reinforcement learning, structured prediction.
- Optimization** Robust and effective optimization algorithms for mixture models, difference of convex algorithm, optimal transport.
- Applications** Natural language processing, remote sensing, signal processing, biostatistics, computer vision, quantum chemistry, drug discovery, materials science.

Selected Publications

Total 7 Peer-reviewed Journal Publications (Electronic Journal of Statistics, Statistics and Computing, Transactions on Machine Learning Research, Journal of Nonparametric Statistics, Communications in Statistics - Theory and Methods) + **13 Peer-reviewed Conference Publications** (3 ICML, 2 NeurIPS (1 Spotlight), 1 AISTATS, 1 IJCNN, 1 AJCAI) + **5 Preprints**.

Deep neural networks

- 2024 Hoai-Chau Tran, Duy MH Nguyen, Manh-Duy Nguyen, **TrungTin Nguyen**, Ngan Hoang Le, Pengtao Xie, Daniel Sonntag, James Zou, Binh T. Nguyen, and Mathias Niepert. [Accelerating Transformers with Spectrum-Preserving Token Merging](#). In **Advances in Neural Information Processing Systems, NeurIPS 2024**, Acceptance rate 25.8% over 15671 submissions, December 2024.

- 2024 Quang Pham, Giang Do, Huy Nguyen, **TrungTin Nguyen**, Chenghao Liu, Mina Sartipi, Binh T Nguyen, Savitha Ramasamy, Xiaoli Li, Steven Hoi, and Nhat Ho. [CompeteSMoE—Effective Training of Sparse Mixture of Experts via Competition](#). *arXiv preprint arXiv:2402.02526*, 2024.
- 2024 Duy MH Nguyen, Nina Lukashina, Tai Nguyen, An T Le, **TrungTin Nguyen**, Nhat Ho, Jan Peters, Daniel Sonntag, Viktor Zaverkin, and Mathias Niepert. [Structure-Aware E\(3\)-Invariant Molecular Conformer Aggregation Networks](#). In *Proceedings of the 41st International Conference on Machine Learning, ICML 2024*, Acceptance rate 27.5% over 9,473 submissions, July 2024.
- 2024 Duy M. H. Nguyen, Nghiem T. Diep, Trung Q. Nguyen, Hoang-Bao Le, Tai Nguyen, Tien Nguyen, **Nguyen, TrungTin**, Nhat Ho, Pengtao Xie, Roger Wattenhofer, James Zhou, Daniel Sonntag, and Mathias Niepert. [LoGra-Med: Long Context Multi-Graph Alignment for Medical Vision-Language Model](#). *arXiv preprint arXiv:2410.02615*, Oct 2024.
- 2023 Truong Giang Do, Huy Khiem Le, Quang Pham, **TrungTin Nguyen**, Binh T. Nguyen, Thanh-Nam Doan, Chenghao Liu, Savitha Ramasamy, Xiaoli Li, and Steven Hoi. [HyperRouter: Towards Efficient Training and Inference of Sparse Mixture of Experts](#). In *Proceedings of the 2023 Empirical Methods in Natural Language Processing, EMNLP 2023 Main*, Acceptance rate 14% over 1041 submissions, December 2023.
- [Asymptotic Statistics](#)
- 2024 Jacob Westerhout, **TrungTin Nguyen**, Xin Guo, and Hien Duy Nguyen. [On the Asymptotic Distribution of the Minimum Empirical Risk](#). In *Proceedings of the 41st International Conference on Machine Learning, ICML 2024*, Acceptance rate 27.5% over 9,473 submissions, July 2024.
- [Approximation capabilities and convergence rates of the mixture of experts models](#)
- 2024 Huy Nguyen, **TrungTin Nguyen**, Khai Nguyen, and Nhat Ho. [Towards Convergence Rates for Parameter Estimation in Gaussian-gated Mixture of Experts](#). In *Proceedings of The 27th International Conference on Artificial Intelligence and Statistics, AISTATS 2024*, Acceptance rate 27.6% over 1980 submissions, May 2024.
- 2024 Huy Nguyen, Pedram Akbarian, **TrungTin Nguyen**, and Nhat Ho. [A General Theory for Softmax Gating Multinomial Logistic Mixture of Experts](#). In *Proceedings of the 41st International Conference on Machine Learning, ICML 2024*, Acceptance rate 27.5% over 9,473 submissions, July 2024.
- 2024 Mark Chiu Chong, Hien Duy Nguyen, and **TrungTin Nguyen**. Risk Bounds for Mixture Density Estimation on Compact Domains via the h-Lifted Kullback–Leibler Divergence. *Transactions on Machine Learning Research*, 2024.
- 2023 Huy Nguyen, **TrungTin Nguyen**, and Nhat Ho. [Demystifying Softmax Gating Function in Gaussian Mixture of Experts](#). In *Advances in Neural Information Processing Systems, NeurIPS 2023 Spotlight*, Acceptance rate 3.6% over 12343 submissions, December 2023.
- 2022 **TrungTin Nguyen**, Faicel Chamroukhi, Hien D. Nguyen, and Geoffrey J. McLachlan. [Approximation of probability density functions via location-scale finite mixtures in Lebesgue spaces](#). *Communications in Statistics - Theory and Methods*, pages 1–12, May 2022.
- 2021 Hien Duy Nguyen, **TrungTin Nguyen**, Faicel Chamroukhi, and Geoffrey John McLachlan. [Approximations of conditional probability density functions in Lebesgue spaces via mixture of experts models](#). *Journal of Statistical Distributions and Applications*, volume 8, page 13, 2021.
- 2020 **TrungTin Nguyen**, Hien D Nguyen, Faicel Chamroukhi, and Geoffrey J McLachlan. [Approximation by finite mixtures of continuous density functions that vanish at infinity](#). *Cogent Mathematics & Statistics*, volume 7, page 1750861. Cogent OA, 2020.

Model selection

- 2023 **TrungTin Nguyen**, Dung Ngoc Nguyen, Hien Duy Nguyen, and Faicel Chamroukhi. [A non-asymptotic risk bound for model selection in high-dimensional mixture of experts via joint rank and variable selection](#). In **Australasian Joint Conference on Artificial Intelligence 2023, AJCAI 2023 Long Oral Presentation**, Acceptance rate 11% over 213 submissions, November 2023.
- 2022 **TrungTin Nguyen**, Hien Duy Nguyen, Faicel Chamroukhi, and Florence Forbes. [A non-asymptotic approach for model selection via penalization in high-dimensional mixture of experts models](#). **Electronic Journal of Statistics**, volume 16, pages 4742 – 4822, 2022.

Bayesian nonparametrics

- 2024 **TrungTin Nguyen**, Florence Forbes, Julian Arbel, and Hien Duy Nguyen. [Bayesian nonparametric mixture of experts for inverse problems](#). *Forthcoming in the Journal of Nonparametric Statistics*, October 2024.
- 2022 **TrungTin Nguyen**, Florence Forbes, and Julian Arbel. Bayesian nonparametric mixture of experts for high-dimensional inverse problems. In [BNP13 – 13th Conference on Bayesian Nonparametrics](#), Puerto Varas, Chile, 2022.

Simulation-based inference

- 2024 Hien Duy Nguyen, **TrungTin Nguyen**, and Florence Forbes. [Bayesian Likelihood Free Inference using Mixtures of Experts](#). In **International Joint Conference on Neural Networks, IJCNN 2024**, Acceptance rate 52% over 3272 submissions, June 2024.
- 2023 Hien Duy Nguyen, **TrungTin Nguyen**, Julian Arbel, and Florence Forbes. [Concentration results for approximate Bayesian computation without identifiability](#). *Preprint. hal-03987197*, February 2023.
- 2022 Florence Forbes, Hien Duy Nguyen, **TrungTin Nguyen**, and Julian Arbel. [Summary statistics and discrepancy measures for approximate Bayesian computation via surrogate posteriors](#). **Statistics and Computing**, volume 32, page 85, October 2022.

Professional Services

Journal Reviewing (See certificate)

IEEE Transactions on Information Theory (The Institute of Electrical and Electronics Engineers): 1 paper.
Electronic Journal of Statistics (Institute of Mathematical Statistics, Bernoulli Society for Mathematical Statistics and Probability): 2 papers.
Journal of the American Statistical Association (Taylor Francis): 2 papers.
Statistics and Computing (Springer): 2 papers.
Computational Statistics and Data Analysis (Elsevier): 4 papers.
Neurocomputing (Elsevier): 1 paper.
Biometrical Journal (Wiley): 2 papers.
Australian & New Zealand Journal of Statistics (Wiley): 2 paper.
Communications in Statistics - Theory and Methods (Taylor Francis): 2 papers.

Conference Reviewing

International Conference on Artificial Intelligence and Statistics (AISTATS): 2 papers.
International Conference on Learning Representations (ICLR): 3 papers.
Annual Conference on Neural Information Processing Systems (NeurIPS): 1 paper.
Annual Meeting of the Association for Computational Linguistics (ACL): 3 papers.
Proceedings of the Research School on Statistics and Data Science (RSSDS 2019) (Springer): 2 papers.

Editorial Board/Program Committee

Australian Statistical Conference 2025 (ASC2025): Scientific Program Committee.

The IEEE World Congress on Computational Intelligence – The International Joint Conference on Neural Networks (IJCNN 2024): Session Chair.

The Queensland Branch of the Statistical Society of Australia (SSA QLD 2024): General Councillor.

Research School on Statistics and Data Science (RSSDS 2019, Springer): Program Committee.

International Journal of Machine Intelligence and Sensory Signal Processing (Inderscience): Associate Editors.

Supervision and Teaching Experiences

- 07–11/2024: **Data Science Capstone Project 1 (DATA7901) (Supervision: 4 Students).** Responsible professor: **Slava Vaisman**, *Postgraduate Coursework, The University of Queensland*, Australia.
- 02–11/2024: **Introduction to Data Science (DATA7001) (Guest Lecturer, Tutorial Content and Practical Session, 30h).** Responsible professor: **Xin Guo**, *Postgraduate Coursework, The University of Queensland*, Australia.
- 01–04/2023: **Statistical analysis and document mining (Lecturer for Complementary Course, 17h).** Responsible professor: **Pedro Rodrigues**, *Master 1 of Applied Mathematics, Université Grenoble Alpes*, France.
- 09–12/2022: **Méthodes statistiques pour la biologie - STA301 (Lecturer and Tutorial Content, 23h).** Responsible professor: **Julien Chevallier**, *Licence Sciences et Technologies - BIO, Université Grenoble Alpes*, France.
- Fall 2018: **Mathematical and numerical foundations of modeling and simulation using partial differential equations (Lecturer for Preparatory Course, 24h).** Responsible professor: **Jing-Rebecca Li (IDEFIX team, Inria)**, *French-Vietnam Master 2 in Applied Mathematics, VNU-HCM*, Vietnam.
- Fall 2017: **Principles of Mathematical Analysis (Teaching Assistant, 30h).** Responsible professor: **Duong Minh Duc**, *Bachelor in Mathematics and Computer Science, VNU-HCM*, Vietnam.