

# TrungTin Nguyen

## Short Curriculum Vitae

Postdoctoral Research Fellow

The University of Queensland

✉ [trungtin.nguyen@uq.edu.au](mailto:trungtin.nguyen@uq.edu.au)

📄 **Homepage:** [trung-tinnnguyen.github.io](https://trung-tinnnguyen.github.io)

🔗 [Long CV Version](#), April 22, 2024



## Academic Appointment

- 2023–present **Postdoctoral Research Fellow**, [School of Mathematics and Physics, 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.
- Machine learning** Supervised learning, unsupervised learning, reinforcement learning.
- 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 5 Journal Publications + 9 Conference Publications + 8 Preprints.

### Deep neural networks

- 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](#). *arXiv preprint arXiv:2402.01975*, 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.

#### 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 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](#). *arXiv preprint arXiv:2404.12586*, 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.
- 2023 Huy Nguyen, Pedram Akbarian, TrungTin Nguyen, and Nhat Ho. [A General Theory for Softmax Gating Multinomial Logistic Mixture of Experts](#). *arXiv preprint arXiv:2310.14188*, October 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.
- 2023 TrungTin Nguyen, Florence Forbes, Julian Arbel, and Hien Duy Nguyen. [Bayesian nonparametric mixture of experts for high-dimensional inverse problems](#). *Preprint. hal-04015203*, March 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.

#### Simulation-based inference

- 2024 Florence Forbes, Hien Duy Nguyen, and TrungTin Nguyen. [Bayesian Likelihood Free Inference using Mixtures of Experts](#). In **International Joint Conference on Neural Networks, IJCNN 2024**, 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)

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

The 62nd Annual Meeting of the Association for Computational Linguistics (ACL 2024): 3 papers

Editorial Board/Program Committee

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

Proceedings of the Research School on Statistics and Data Science (RSSDS 2019) (Springer): 2 papers

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