

# SON VAN NGUYEN

VinAI Research, Ha Noi, Viet Nam.

Homepage: [sonpeter.github.io](https://sonpeter.github.io)

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## RESEARCH INTEREST

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My central research has been motivated by developing impactful and interpretable algorithms for machine learning models, with a current focus on methods at the intersection of probabilistic modeling and deep learning. I am particularly excited about efficient and scalable probabilistic inference methods applied in complex settings with computational bottleneck such as Bayesian deep learning, hierarchical Bayesian models, online/continual learning.

## EDUCATION

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**Ha Noi University of Science and Technology (HUST)** Ha Noi, Viet Nam

- Master of Data Science, *Master of Research degree* Oct 2019 - Apr 2021  
Thesis title: "[Improving Bayesian inference in deep neural networks with Variational Structured Dropout](#)"  
CPA: 3.84/4.00, Thesis: 4.00/4.00
- Bachelor of Information Technology, *Program of Talented Engineers* Aug 2014 - Jun 2019  
Thesis title: "[An effective Bayesian approach for discovering hidden semantics from data streams](#)"  
CPA: 3.50/4.00 (rank 2/21 in the talented class), Thesis: 4.00/4.00

**Phan Boi Chau High School for the Gifted Students, Specialized Math Class** Nghe An, Viet Nam  
Aug 2011 - Jun 2014

## EXPERIENCES

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**VinAI Research** ([www.vinai.io](https://www.vinai.io)) Ha Noi, Viet Nam  
*AI Research Resident* Aug 2020-present

- Main research topics: Bayesian Deep Learning, Deep Generative Models
- Advisor: Dr. **Nhat Ho** (Assistant Professor at UT, Austin)
- Knowledge gained: Advances in Bayesian Deep Learning (gradient-based MCMC, Variational Inference with dependence structure, principles of uncertainty estimation), Deep Generative Models (VAEs, GANs, Normalizing Flows, applications of Optimal Transport)

**Data Science Laboratory (HUST)** Ha Noi, Viet Nam  
*Research Assistant* Aug 2018 - Aug 2020

- Main research topics: Probabilistic Graphical Model, Bayesian inference
- Advisor: Dr Khoat Than (Associate Professor at HUST)
- Knowledge gained: Foundations of Machine Learning, Topic models, Bayesian inference, Variational Approximation, and applications in online/continual learning

*Teaching Assistant* Feb 2020 - Jun 2020

- Machine Learning and Data Mining course

**Viettel Network Technology R&D Center, Department of Data Science** Ha Noi, Viet Nam  
*Internship* Jun 2018 - Jun 2019

- Projects: analyze the consumer behavior in telecommunication of millions of users, develop recommendation algorithms for promotions

## SUBMISSIONS

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1. **Son Nguyen**, Khai Nguyen, Nhat Ho, "[Amortized Bayesian Continual Learning](#)", *To be submitted 2022*
2. Ha Nguyen, Hoang Pham, **Son Nguyen**, Linh Ngo, Khoat Than, "[Adaptive Infinite Dropout for Noisy and Sparse Data Streams](#)", *Under minor revision at Machine Learning journal, 2021*

## PUBLICATIONS

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1. **Son Nguyen**, Duong Nguyen, Khai Nguyen, Khoat Than, Hung Bui\*, Nhat Ho\*, "[Structured Dropout Variational Inference for Bayesian Neural Networks](#)", *Advances in Neural Information Processing Systems (NeurIPS) 2021*
2. Khai Nguyen, **Son Nguyen**, Nhat Ho, Tung Pham, Hung Bui, "[Distributional Sliced-Wasserstein and Applications to Generative Modeling](#)", *International Conference on Learning Representations (ICLR) 2021*
3. **Son Nguyen**, Tung Nguyen, Linh Ngo, Khoat Than, "[Infinite Dropout for training Bayesian models from data streams](#)", *IEEE International Conference on Big Data (Big Data) 2019*

## AWARDS AND RECOGNITIONS

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1. Scholarship of the Domestic Master Program of Vingroup Innovation Foundation (VINIF, \$5,000) 2019
2. Best Thesis Award, Best Presentation Award for undergraduate student 2019
3. Third Prize in the Scientific Research Student Conference, HUST 2019
4. Scholarship for students with good academic records, HUST 2015, 2017
5. Vietnam Mathematics Olympiad for university students (VMS) 2015, 2016  
(First Prize in Calculus, Second Prize in Algebra)
6. Scholarship of the National Program for the Development of Mathematics, Vietnam Institute for Advanced Study in Mathematics (VIASM) 2014, 2015
7. Second prize in Vietnam Mathematical Olympiad (VMO) for high school students 2014

## TECHNICAL TALKS

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1. Uncertainty in Deep Learning and the case for Bayesian Deep Learning, *VinAI Research*, slide [here](#) Jun, 2021
2. Optimal Transport for Generative Modelling, *VinAI Research*, slide [here](#) Oct, 2020

## EDUCATIONAL ACTIVITIES

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1. **Book:** [Olympic mathematical topics for gifted students](#), 2 volumes, *Vietnam National University Press, Ha Noi*. Nguyen Dinh Thanh Cong, Nguyen Van Huong, Nguyen Duy Hung, Tran Tri Kien, **Nguyen Van Son**, Le Nhat, Tran Bao Trung Jul 2017
2. **Book:** [Topics on combinatorics and complex numbers](#), *Vietnam National University Press, Ha Noi*. Tran Tri Kien, **Nguyen Van Son**, Le Nhat Jul 2016
3. Member of GSTT Group (a non-profit educational organization), lead refresher courses and consolidate the knowledge for high school students Oct 2014 - Oct 2015

## SPECIALIZED SKILLS

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### Programming skills:

- Proficient: Python (PyTorch, numpy, pandas, scikit-learn)
- Familiar: C, JAVA, LATEX