

Trang H. Tran

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(Updated February 11, 2022)

FIELDS OF INTEREST

Optimization, and Machine Learning/Deep Learning

EDUCATION

2020 – Present [School of Operations Research and Information Engineering, Cornell University](#)

Doctor of Philosophy, Major: Operations Research

PhD advisor: Prof. Katya Scheinberg

PhD co-advisor: Dr. Lam M. Nguyen

2019 – 2020 [Institute of Mathematics, Vietnam Academy of Science and Technology](#)

Graduate Study in Applied Mathematics (Dropped)

2015 – 2019 [Hanoi National University of Education](#)

Honor Class, Faculty of Mathematics

Degree of Bachelor, Classification: Excellent

PUBLICATIONS

2021 [SMG: A Shuffling Gradient-Based Method with Momentum](#)

Trang H. Tran, Lam M. Nguyen, and Quoc Tran-Dinh

International Conference on Machine Learning (ICML 2021) (21.47% acceptance rate)

PREPRINTS

2022 [Nesterov Accelerated Shuffling Gradient Method for Convex Optimization.](#)

Trang H. Tran, Lam M. Nguyen, Katya Scheinberg

Technical report, arXiv preprint, 2022

2022 [New Perspective on the Global Convergence of Finite-Sum Optimization](#)

Lam M. Nguyen*, **Trang H. Tran***, and Marten van Dijk

Technical report, arXiv preprint, 2022

PROFESSIONAL ACTIVITIES

2020 – Present [Program Committee – Reviewer \(peer-reviewed conferences\)](#)

International Conference on Machine Learning (ICML 2020 - 2022)

Conference on Neural Information Processing Systems (NeurIPS 2021)

International Conference on Learning Representations (ICLR 2021 - 2022)

Conference on Artificial Intelligence (AAAI 2022)

International Conference on Artificial Intelligence and Statistics (AISTATS 2021 - 2022)

Conference on Uncertainty in Artificial Intelligence (UAI 2022)

2021 [Reviewer \(peer-reviewed journal\)](#)

Machine Learning

Neural Networks

IEEE Transactions on Signal Processing

2021 [Session Chair / Organizer](#)

INFORMS Annual Meeting 2021 – "Recent Advances in Stochastic Gradient Algorithms"

- 2021 [Program Committee – Reviewer \(workshops\)](#)
Optimization for Machine Learning: Beyond Worst-case Complexity (OPT 2021 – NeurIPS 2021 Workshop)
New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership (NFFL 2021 – NeurIPS 2021 Workshop)

RESEARCH EXPERIENCES

- 2021 – Present [Stochastic Zeroth-order/First-order Oracles in Optimization](#)
Working under the supervision of Prof. Katya Scheinberg
– Analyze the stochastic methods for continuous optimization problems.
– Investigate some fundamental properties of various probabilistic zeroth-order/first-order oracles with the aim to utilize that information to design effective optimization methods.
- 2020 – Present [Nesterov Accelerated Shuffling Gradient Method for Convex Optimization](#)
Working under the supervision of Dr. Lam M. Nguyen and Prof. Katya Scheinberg
– Propose a new algorithm for the convex finite-sum problems, which integrates the traditional Nesterov’s acceleration momentum with different shuffling sampling schemes.
– Prove an improved convergence rate in term of epochs, which is better than that of any other shuffling gradient methods in convex regime.
- 2020 – Present [New Perspective on the Global Convergence of Finite-Sum Optimization](#)
Working under the supervision of Dr. Lam M. Nguyen
– Present an alternative formulation for the finite-sum nonconvex optimization problems.
– Propose a novel framework that guarantees global convergence and exploits the structure of machine learning problems where the loss functions are convex.
- 2020 – 2021 [SMG: A Shuffling Gradient-Based Method with Momentum](#)
Working under the supervision of Dr. Lam M. Nguyen
– Develop a new shuffling gradient algorithm with momentum for solving the finite-sum minimization problems.
– Establish the state-of-the-art convergence rate for our method under standard assumptions using different learning rates and shuffling strategies.
Published as a conference paper at ICML 2021

INDUSTRY EXPERIENCE

- Summer 2022 [AI Research Intern \(upcoming\)](#)
IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
Supervisor: Dr. Lam M. Nguyen

HONORS & AWARDS

- 2021 [Outstanding Reviewer](#)
International Conference on Learning Representations (ICLR 2021)
Reviewer Award (Top 10%)
- 2020 [ORIE Field Fellowship](#)
Eleanor and Howard Morgan PhD’68 Graduate Fellowship, Fall 2020
- 2019 [Young Talent Scholarship Programme 2019](#)
From the Vingroup Innovation Foundation (VINIF) for outstanding students who are pursuing the domestic postgraduate study programmes
- 2016 – 2018 [Students Scholarship in National Program](#)
for the Development of Mathematics until 2020
- 2016 [First Prize on Algebra](#)
In Vietnam Mathematics Competition for University Students (nationwide award)

INVITED TALKS

10 – 2021 [Shuffling Gradient-Based Methods](#)
INFORMS Annual Meeting 2021, Anaheim, CA

OTHER EXPERIENCES

[Research Assistant](#)
Fall 2021 Cornell University
Supervisor: Prof. Katya Scheinberg

[Teaching Assistant](#)
Spring 2021 Cornell University
ORIE 3510 Introduction to Engineering Stochastic Processes

SKILLS

[Technical](#) Python, MATLAB, PyTorch, TensorFlow, Keras, Gurobi.
[Language](#) Vietnamese (native), English (proficient)

REFERENCES

Katya Scheinberg, Ph.D.

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[School of Operations Research and Information Engineering](#), Cornell University
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