Trang H. Tran

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(Updated November 2, 2021)

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

PUBLICATION

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)

PROFESSIONAL ACTIVITIES

2020 – Present **Program Committee – Reviewer (peer-reviewed conferences)**
International Conference on Machine Learning (ICML 2021, 2020)
Conference on Neural Information Processing Systems (NeurIPS 2021)
International Conference on Learning Representations (ICLR 2022, 2021)
Conference on Artificial Intelligence (AAAI 2022)
International Conference on Artificial Intelligence and Statistics (AISTATS 2022, 2021)

2021 **Reviewer (peer-reviewed journal)**
IEEE Transactions on Signal Processing

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)

2021 **Session Chair / Organizer**
INFORMS Annual Meeting 2021 – "Recent Advances in Stochastic Gradient Algorithms"

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 **New Perspective on the Global Convergence of Finite-Sum Optimization**
Working under the supervision of Dr. Lam M. Nguyen
– Present an alternative formulation for solving the finite-sum optimization problem.
– Propose a novel framework that guarantees global convergence and exploits the structure of machine learning problems where the loss functions are convex.
Under review as a conference paper at ICLR 2022

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 nonconvex 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 Supervisor: Prof. Katya Scheinberg.
Cornell University

Teaching Assistant
Spring 2021 ORIE 3510 Introduction to Engineering Stochastic Processes,
Cornell University

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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