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(Updated on August 4, 2023)

#### **EDUCATION**

2014 - 2018	<b>Ph.D.</b> , Department of Industrial and Systems Engineering, <i>Lehigh University</i> , Bethlehem, PA
	Thesis advisors: Katya Scheinberg, Martin Takac, and Alexander L. Stolyar
	Thesis title: A Service System with On-Demand Agents, Stochastic Gradient Algorithms
	and the SARAH Algorithm
	Elizabeth V. Stout Dissertation Award
	Research areas: Optimization for Large Scale Problems, Machine Learning, Deep Learning,
	Stochastic Models, Optimal Control
2011 - 2013	M.B.A., College of Business, McNeese State University, Lake Charles, LA
	Beta Gamma Sigma (Academic Honor)
2004 - 2008	<b>B.S.</b> , Applied Mathematics and Computer Science, Faculty of Computational Mathematics and Cybernetics, <i>Lomonosov Moscow State University</i> , Moscow, Russia
	Thesis advisor: Vladimir I. Dmitriev
	Thesis title: Methods for Detecting Hidden Period in Some Economics Processes

### RESEARCH EXPERIENCE

TEDERITORI EXTERNACE	
06/2022 – Present	<b>Staff Research Scientist,</b> <i>IBM Research, Thomas J. Watson Research Center,</i> Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Reinforcement Learning, Time Series
04/2021 - 06/2022	Research Staff Member, IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Reinforcement Learning
09/2020 - Present	Principal Investigator, MIT-IBM Watson AI Lab, Cambridge, MA
	Research areas: Dynamical Systems, Time Series, Reinforcement Learning, Adversarial Robustness
10/2018 - 03/2021	Research Scientist, IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Deep Learning, Reinforcement Learning, AI Solutions, Explainable AI
05/2018 - 08/2018	Research Intern, IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Deep Learning, Reinforcement Learning
08/2017 - 05/2018	Research Co-op, IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Deep Learning
06/2017 - 08/2017	Research Intern, IBM Research, Thomas J. Watson Research Center, Yorktown Heights, NY
	Research areas: Optimization, Machine Learning, Deep Learning
09/2014 - 05/2017	Research Assistant, Lehigh University, Bethlehem, PA Research areas: Optimization for Large Scale Problems, Machine Learning, Deep Learning, Stochastic Models, Optimal Control
01/2012 - 12/2013	Graduate (Research) Assistant, McNeese State University, Lake Charles, LA Research areas: Operations Management and Finance

# ${\bf EDITORSHIP} \ / \ {\bf PROGRAM} \ {\bf COMMITTEE} \ / \ {\bf ORGANIZING} \ {\bf COMMITTEE}$

/	, , , , , , , , , , , , , , , , , , , ,
	EDITORSHIP (PEER-REVIEWED JOURNALS)
06/2022 – Present	Action Editor, Journal of Machine Learning Research
06/2021 – Present	Action Editor, Machine Learning
01/2022 – Present	Associate Editor, IEEE Transactions on Neural Networks and Learning Systems
06/2022 – Present	Associate Editor, Journal of Optimization Theory and Applications
01/2022 - 12/2022	Action Editor, Neural Networks
	AREA CHAIR / META-REVIEWER/ SENIOR PROGRAM COMMITTEE (PEER-REVIEWED CONFERENCES)
2020 - 2023	Area Chair, International Conference on Machine Learning (ICML)
2022 - 2023	Area Chair, Conference on Neural Information Processing Systems (NeurIPS)
2021 - 2023	Area Chair, International Conference on Learning Representations (ICLR)
2021 - 2023	Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS)
2022 - 2023	Area Chair, Conference on Uncertainty in Artificial Intelligence (UAI)
2023 - 2024	Area Chair, Conference on Computer Vision and Pattern Recognition (CVPR)
2022	Senior Program Committee, AAAI Conference on Artificial Intelligence (AAAI)
	ORGANIZING COMMITTEE
2023	<b>Journal Chair</b> , The 37th Conference on Neural Information Processing Systems (NeurIPS 2023)
2023	<b>General Chair &amp; Program Chair</b> , When Machine Learning meets Dynamical Systems: Theory and Applications, AAAI 2023 Workshop
2021	<b>Program Chair</b> , New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership (NFFL 2021), NeurIPS 2021 Workshop
	REVIEWER (PROPOSALS)
2022	Reviewer & Panelist, Grant proposals, National Science Foundation (NSF)
2022	Evaluation Member, Grant proposals, AI Singapore (AISG) Research Programme
2021	Reviewer, Workshop proposals, NeurIPS 2021 Workshops

### GRANT EXPERIENCE

MIT PI: Cathy Wu

MIT Student: Vindula Jayawardana

01/2023 - 12/2025	Principal Investigator, "Safe Learning for Time Series Problems: Data, Structure and Optimization", MIT-IBM Watson AI Lab Foundational Project, \$750K + \$150K IBM PI: Lam M. Nguyen, IBM Co-PI: Subhro Das MIT PI: Luca Daniel, MIT Co-PI: Alexandre Megretski MIT Students: Wang Zhang, Ziwen (Martin) Ma (Harvard)
01/2022 - 12/2022	Principal Investigator, "Safe AI Certification", MIT-IBM Watson AI Lab Project, \$150K IBM PI: Lam M. Nguyen, IBM Co-PI: Subhro Das MIT PI: Alexandre Megretski, MIT Co-PI: Luca Daniel MIT Student: Wang Zhang
01/2021 - 12/2021	Principal Investigator, "Safety Structures, Certification, and Training for AI in the Feedback Loop", MIT-IBM Watson AI Lab Exploratory Project, \$150K.  IBM PI: Lam M. Nguyen, IBM Co-PI: Subhro Das, Tsui-Wei Weng MIT PI: Alexandre Megretski, MIT Co-PI: Luca Daniel MIT Student: Wang Zhang
09/2020 - 09/2021	Co-Principal Investigator, "Hierarchical Disentangled Representations for Scalable Multi-agent Reinforcement Learning", MIT-IBM Watson AI Lab Exploratory Project, \$100K. IBM PI: Tsui-Wei Weng, IBM Co-PI: Lam M. Nguyen

#### JOURNAL & PEER-REVIEWED CONFERENCE PAPERS

[35]ConCerNet: A Contrastive Learning Based Framework for Automated Conservation Law Discovery and Trustworthy Dynamical System Prediction. Wang Zhang, Tsui-Wei Weng, Subhro Das, Alexandre Megretski, Luca Daniel, Lam M. Nguven The 40th International Conference on Machine Learning (ICML 2023), 2023 (27.9% acceptance rate) [34]Scalable and Secure Federated XGBoost. Quang Nguyen, Nhan Khanh Le, Lam M. Nguyen. The 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2023), 2023 [33] Label-free Concept Bottleneck Models. Tuomas Oikarinen, Subhro Das, Lam M. Nguyen, Tsui-Wei Weng. The 11th International Conference on Learning Representations (ICLR 2023), 2023 [32]Optimal Control via Linearizable Deep Learning. Vinicius Lima, Dzung T. Phan, Lam M. Nguyen, Jayant R. Kalagnanam The 2023 American Control Conference (ACC 2023), 2023 [31] Nesterov Accelerated Shuffling Gradient Method for Convex Optimization. Trang H. Tran, Katya Scheinberg, Lam M. Nguyen The 39th International Conference on Machine Learning (ICML 2022), 2022 (21.9% acceptance rate) [30]Finite-Sum Smooth Optimization with SARAH. Lam M. Nguyen, Marten van Dijk, Dzung T. Phan, Phuong Ha Nguyen, Tsui-Wei Weng, Jayant R. Kalagnanam Computational Optimization and Applications (COAP), 2022 [29] AI-based Real-time Site-wide Optimization for Process Manufacturing. Jayant Kalagnanam, Dzung Phan, Pavankumar Murali, Lam M. Nguyen, Nianjun Zhou, Dharmashankar Subramanian, Raju Pavuluri, Xiang Ma, Crystal Lui, Giovane Cesar da Silva INFORMS Journal on Applied Analytics (IJAA), 2022 StepDIRECT - A Derivative-Free Optimization Method for Stepwise Functions. [28]Dzung Phan, Hongsheng Liu, Lam M. Nguyen SIAM International Conference on Data Mining (SDM22), 2022 (27.8% acceptance Besting the Black-Box: Barrier Zones for Adversarial Example Defense. [27]Kaleel Mahmood, Phuong Ha Nguyen, Lam M. Nguyen, Thanh Nguyen, Marten van IEEE Access, 2022 [26] Interpretable Clustering via Multi-Polytope Machines. Connor Lawless, Jayant Kalagnanam, Lam M. Nguyen, Dzung Phan, Chandra Reddy The 36th AAAI Conference on Artificial Intelligence (AAAI 2022), 2022 (15% acceptance rate) [25]FedDR - Randomized Douglas-Rachford Splitting Algorithms for Nonconvex Federated Composite Optimization. Quoc Tran-Dinh, Nhan Pham, Dzung T. Phan, Lam M. Nguyen The 35th Conference on Neural Information Processing Systems (NeurIPS 2021), 2021 (26% acceptance rate) Ensembling Graph Predictions for AMR Parsing. [24] Thanh Lam Hoang, Gabriele Picco, Yufang Hou, Young-Suk Lee, Lam M. Nguyen, Dzung T. Phan, Vanessa López, Ramon Fernandez Astudillo The 35th Conference on Neural Information Processing Systems (NeurIPS 2021), 2021

(26% acceptance rate)

The 35th Conference on Neural Information Processing Systems (NeurIPS 2021), 2021 (26% acceptance rate) [22] A Unified Convergence Analysis for Shuffling-Type Gradient Methods. Lam M. Nguyen, Quoc Tran-Dinh, Dzung T. Phan, Phuong Ha Nguyen, Marten van Journal of Machine Learning Research (JMLR), volume 22, 1-43, 2021 [21] SMG: A Shuffling Gradient-Based Method with Momentum. Trang H. Tran, Lam M. Nguyen, Quoc Tran-Dinh The 38th International Conference on Machine Learning (ICML 2021), PMLR 139, 2021 (21.47% acceptance rate) [20] Regression Optimization for System-level Production Control. Dzung T. Phan, Lam M. Nguyen, Pavankumar Murali, Nhan H. Pham, Hongsheng Liu, Jayant R. Kalagnanam The 2021 American Control Conference (ACC 2021), 2021 [19] Hogwild! over Distributed Local Data Sets with Linearly Increasing Mini-Batch Sizes. Nhuong V. Nguyen, Toan N. Nguyen, Phuong Ha Nguyen, Quoc Tran-Dinh, Lam M. Nguyen, Marten van Dijk The 24th International Conference on Artificial Intelligence and Statistics (AISTATS **2021**), 2021 (29.8% acceptance rate) [18] A Hybrid Stochastic Optimization Framework for Stochastic Composite Nonconvex Optimization. Quoc Tran-Dinh, Nhan H. Pham, Dzung T. Phan, Lam M. Nguyen Mathematical Programming (MAPR), 2021 IBM 2022 Pat Goldberg Memorial Best Paper Award Hybrid Variance-Reduced SGD Algorithms for Nonconvex-Concave Minimax Problems. [17]Quoc Tran-Dinh, Deyi Liu, Lam M. Nguyen The 34th Conference on Neural Information Processing Systems (NeurIPS 2020), 2020 (20.1% acceptance rate) [16] A Scalable MIP-based Method for Learning Optimal Multivariate Decision Trees. Haoran Zhu, Pavankumar Murali, Dzung T. Phan, Lam M. Nguyen, Jayant R. Kalagnanam The 34th Conference on Neural Information Processing Systems (NeurIPS 2020), 2020 (20.1% acceptance rate) [15]Inexact SARAH Algorithm for Stochastic Optimization. Lam M. Nguyen, Katya Scheinberg, Martin Takac Optimization Methods and Software (GOMS), volume 36(1), 237-258, 2020 [14] Pruning Deep Neural Networks with L0-constrained Optimization. Dzung T. Phan, Lam M. Nguyen, Nam H. Nguyen, Jayant R. Kalagnanam The 20th IEEE International Conference on Data Mining (ICDM 2020), 2020 (19.7% acceptance rate) [13] Stochastic Gauss-Newton Algorithms for Nonconvex Compositional Optimization. Quoc Tran-Dinh, Nhan H. Pham, Lam M. Nguyen The 37th International Conference on Machine Learning (ICML 2020), PMLR 119, 2020 (21.8% acceptance rate) [12]ProxSARAH: An Efficient Algorithmic Framework for Stochastic Composite Nonconvex Optimization. Nhan H. Pham, Lam M. Nguyen, Dzung T. Phan, Quoc Tran-Dinh Journal of Machine Learning Research (JMLR), volume 21(110), 1-48, 2020 IBM 2020 Pat Goldberg Memorial Best Paper Competition - Finalist

On the Equivalence between Neural Network and Support Vector Machine.

Yilan Chen, Wei Huang, Lam M. Nguyen, Tsui-Wei Weng

[23]

[11]A Hybrid Stochastic Policy Gradient Algorithm for Reinforcement Learning. Nhan H. Pham, Lam M. Nguyen, Dzung T. Phan, Phuong Ha Nguyen, Marten van Dijk, Quoc Tran-Dinh The 23rd International Conference on Artificial Intelligence and Statistics (AISTATS **2020**), PMLR 108, 2020 [10] New Convergence Aspects of Stochastic Gradient Algorithms. Lam M. Nguyen, Phuong Ha Nguyen, Peter Richtarik, Katya Scheinberg, Martin Takac, Marten van Dijk Journal of Machine Learning Research (JMLR), volume 20(176), 1-49, 2019 [9] Tight Dimension Independent Lower Bound on the Expected Convergence Rate for Diminishing Step Sizes in SGD. Phuong Ha Nguyen, Lam M. Nguyen, Marten van Dijk The 33th Conference on Neural Information Processing Systems (NeurIPS 2019), 2019 (21.17% acceptance rate) [8] PROVEN: Verifying Robustness of Neural Networks with a Probabilistic Approach. Tsui-Wei Weng, Pin-Yu Chen\*, Lam M. Nguyen\*, Mark S. Squillante\*, Akhilan Boopathy, Ivan Oseledets, Luca Daniel The 36th International Conference on Machine Learning (ICML 2019), PMLR 97, 2019 (22.5% acceptance rate) [7] Characterization of Convex Objective Functions and Optimal Expected Convergence Rates for SGD. Marten van Dijk, Lam M. Nguyen, Phuong Ha Nguyen, Dzung T. Phan The 36th International Conference on Machine Learning (ICML 2019), PMLR 97, 2019 (22.5% acceptance rate) [6] ChieF: A Change Pattern based Interpretable Failure Analyzer. Dhaval Patel, Lam M. Nguyen, Akshay Rangamani, Shrey Shrivastava, Jayant Kalagnanam 2018 IEEE International Conference on Big Data (IEEE BigData 2018), 2018 [5] SGD and Hogwild! Convergence Without the Bounded Gradients Assumption. Lam M. Nguyen, Phuong Ha Nguyen, Marten van Dijk, Peter Richtarik, Katya Scheinberg, Martin Takac The 35th International Conference on Machine Learning (ICML 2018), PMLR 80, 2018~(25%~acceptance~rate)IBM Research AI – Selected Publications 2018 [4] SARAH: A Novel Method for Machine Learning Problems Using Stochastic Recursive Gradient. Lam M. Nguyen, Jie Liu, Katya Scheinberg, Martin Takac The 34th International Conference on Machine Learning (ICML 2017), PMLR 70:2613-2621, 2017 (25% acceptance rate) Van Hoesen Family Best Publication Award [3] A Queueing System with On-demand Servers: Local Stability of Fluid Limits. Lam M. Nguyen, Alexander L. Stolvar Queueing Systems (QUESTA), 1-26, Springer, 2017 [2] A Service System with Randomly Behaving On-demand Agents. Lam M. Nguyen, Alexander L. Stolyar The 42nd International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS 2016), ACM SIGMETRICS Performance Evaluation Review, 44(1):365-366, 2016 (25% acceptance rate) [1] CEO Compensation: Does Financial Crisis Matter? Prasad Vemala, Lam Nguyen, Dung Nguyen, Alekhya Kommasani

International Business Research, 7(4):125-131, 2014

#### PEER-REVIEWED WORKSHOP PAPERS

[6] c-MBA: Adversarial Attack for Cooperative MARL Using Learned Dynamics Model. Nhan H. Pham, Lam M. Nguyen, Jie Chen, Hoang Thanh Lam, Subhro Das, Tsui-Wei Weng The 36th Conference on Neural Information Processing Systems (NeurIPS 2022), ML Safety, 2022 [5] Fast Convergence for Unstable Reinforcement Learning Problems by Logarithmic Map-Wang Zhang, Lam M. Nguyen, Subhro Das, Alexandre Megretski, Luca Daniel, Tsui-Wei Weng The 39th International Conference on Machine Learning (ICML 2022), Decision Awareness in Reinforcement Learning, 2022 [4] Robust Randomized Smoothing via Two Cost-Effective Approaches. Linbo Liu, Trong Nghia Hoang, Lam M. Nguyen, Tsui-Wei Weng The 10th International Conference on Learning Representations (ICLR 2022), PAIR2Struct: Privacy, Accountability, Interpretability, Robustness, Reasoning on Structured Data, 2022 [3] Addressing Solution Quality in Data Generated Optimization Models. Orit Davidovich, Parikshit Ram, Segev Wasserkrug, Dharmashankar Subramanian, Nianjun Zhou, Dzung Phan, Pavankumar Murali, Lam M. Nguyen The 36th AAAI Conference on Artificial Intelligence (AAAI 2022), AI for Decision Optimization, AI4DO, 2022 [2] Automated Decision Optimization: Data and Knowledge Driven Optimization Model Generation with Human-in-the-loop. Lisa Amini, Arunima Chaudhary, Yishai Feldman, Pavankumar Murali, Lam M. Nguyen, Dzung Phan, Aviad Sela, Carolina Spina, Dharmashankar Subramanian, Abel Valente, Long Vu, Dakuo Wang, Segev Wasserkrug, Ritesh Yadav, Nianjun Zhou The 36th AAAI Conference on Artificial Intelligence (AAAI 2022), AI for Decision Optimization, AI4DO, 2022 [1] Ensuring the Quality of Optimization Solutions in Data Generated Optimization Models. Segev Wasserkrug, Orit Davidovith, Evgeny Shindin, Dharmashankar Subramanian, Parikshit Ram, Pavankumar Murali, Dzung Phan, Nianjun Zhou, Lam M. Nguyen The 30th International Joint Conference on Artificial Intelligence (IJCAI 2021), Data Science Meets Optimisation, DSO@IJCAI2021, 2021 **PREPRINTS** [17] Batch Clipping and Adaptive Layerwise Clipping for Differential Private Stochastic Gradient Descent. Toan N. Nguyen\*, Phuong Ha Nguyen\*, Lam M. Nguyen, Marten van Dijk Technical report, arXiv preprint, 2023 [16] Learning Robust and Consistent Time Series Representations: A Dilated Inception-Based Approach. Anh Duy Nguyen, Trang H. Tran, Hieu H. Pham, Phi Le Nguyen, Lam M. Nguyen Technical report, arXiv preprint, 2023 [15]An End-to-End Time Series Model for Simultaneous Imputation and Forecast. Trang H. Tran, Lam M. Nguyen, Kyongmin Yeo, Nam Nguyen, Dzung Phan, Roman Vaculin, Jayant Kalagnanam Technical report, arXiv preprint, 2023 [14] Generalizing DP-SGD with Shuffling and Batching Clipping. Marten van Dijk, Phuong Ha Nguyen, Toan N. Nguyen, Lam M. Nguyen Technical report, arXiv preprint, 2022 Finding Optimal Policy for Queueing Models: New Parameterization. [13]

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

Technical report, arXiv preprint, 2022

Technical report, arXiv preprint, 2022 [11]Finite-Sum Optimization: A New Perspective for Convergence to a Global Solution. Lam M. Nguyen\*, Trang H. Tran\*, Marten van Dijk Technical report, arXiv preprint, 2022 On Unbalanced Optimal Transport: Gradient Methods, Sparsity and Approximation [10]Error. Quang Minh Nguyen, Hoang H. Nguyen, Yi Zhou, Lam M. Nguyen Technical report, arXiv preprint, 2022 [9] Evaluating Robustness of Cooperative MARL: A Model-based Approach. Nhan H. Pham, Lam M. Nguyen, Jie Chen, Hoang Thanh Lam, Subhro Das, Tsui-Wei Technical report, arXiv preprint, 2022 [8] Differential Private Hogwild! over Distributed Local Data Sets. Marten van Dijk, Nhuong V. Nguyen, Toan N. Nguyen, Lam M. Nguyen, Phuong Ha Nguven Technical report, arXiv preprint, 2021 [7] An Optimal Hybrid Variance-Reduced Algorithm for Stochastic Composite Nonconvex Optimization. Deyi Liu, Lam M. Nguyen, Quoc Tran-Dinh Technical report, arXiv preprint, 2020 [6] Asynchronous Federated Learning with Reduced Number of Rounds and with Differential Privacy from Less Aggregated Gaussian Noise. Marten van Dijk, Nhuong V. Nguyen, Toan N. Nguyen, Lam M. Nguyen, Quoc Tran-Dinh, Phuong Ha Nguyen Technical report, arXiv preprint, 2020 [5] Finite-Time Analysis of Stochastic Gradient Descent under Markov Randomness. Thinh T. Doan, Lam M. Nguyen, Nhan H. Pham, Justin Romberg Technical report, arXiv preprint, 2020 [4] Convergence Rates of Accelerated Markov Gradient Descent with Applications in Reinforcement Learning. Thinh T. Doan, Lam M. Nguyen, Nhan H. Pham, Justin Romberg Technical report, arXiv preprint, 2020 [3] Hybrid Stochastic Gradient Descent Algorithms for Stochastic Nonconvex Optimization. Quoc Tran-Dinh, Nhan H. Pham, Dzung T. Phan, Lam M. Nguyen Technical report, arXiv preprint, 2019 [2] When Does Stochastic Gradient Algorithm Work Well? Lam M. Nguyen, Nam H. Nguyen, Dzung T. Phan, Jayant R. Kalagnanam, Katya Scheinberg Technical report, arXiv preprint, 2018 [1] Stochastic Recursive Gradient Algorithm for Nonconvex Optimization Lam M. Nguyen, Jie Liu, Katya Scheinberg, Martin Takac Technical report, arXiv preprint, 2017 GRANTED PATENTS [4]Optimal Interpretable Decision Trees Using Integer Linear Programming Techniques. Patent 11676039 Pavankumar Murali, Haoran Zhu, Dung Tien Phan, Lam M. Nguyen [3] Site-wide Operations Management Optimization for Manufacturing and Processing Control. Patent 11656606 Dung Tien Phan, Lam M. Nguyen, Pavankumar Murali, and Hongsheng Liu

On the Convergence to a Global Solution of Shuffling-Type Gradient Algorithms.

Lam M. Nguyen\*, Trang H. Tran\*

[12]

[2] A Shuffling-Type Gradient Method for Training Machine Learning models with Big Data. Patent 11568171 Lam M. Nguyen, Dung Tien Phan [1] Prediction Optimization for System-level Production Control. Patent 11099529 Dzung T. Phan, Lam M. Nguyen, Pavankumar Murali, Jayant R. Kalagnanam PATENTS APPLICATIONS [31] Neural Network-Based Dynamical System Modeling for Contrastively Learned Conservation Laws. Filed on July 21, 2023 Lam M. Nguyen, Wang Zhang, Subhro Das, Alexandre Megretski, Luca Daniel [30] Generative Modeling and Representational Learning from Multi-Sequence Alignment and Phylogenetic Tree Data. Filed on June 30, 2023 Thanh Lam Hoang, Marcos Martínez Galindo, Gabriele Picco, Mykhaylo Zayats, Nhan Huu Pham, Lam M. Nguyen, Marco Luca Sbodio, Dzung Tien Phan, Vanessa Lopez Garcia [29] Regression-Optimization Control of Production Process with Dynamic Inputs. Filed on May 11, 2023 Lam M. Nguyen, Pavankumar Murali, Nianjun Zhou, Binny Winston Samuel [28] Time Series Forecasting Using Multivariate Time Series Data with Missing Values. Filed on January 28, 2023 Lam M. Nguyen, Trang H. Tran, Kyong Min Yeo, Nam H. Nguyen, Dzung Tien Phan, Roman Vaculin, Jayant R. Kalagnanam [27]Multivariable Time-Series Feature Extraction. Filed on January 27, 2023 Lam M. Nguyen, Wang Zhang, Subhro Das, Alexandre Megretski, Luca Daniel [26] Privacy Enhanced Machine Learning over Graph Data. Filed on January 23, 2023 Ambrish Rawat, Naoise Holohan, Heiko H. Ludwig, Ehsan Degan, Nathalie Baracaldo Angel, Alan Jonathan King, Swanand Ravindra Kadhe, Yi Zhou, Keith Coleman Houck, Mark Purcell, Giulio Zizzo, Nir Drucker, Hayim Shaul, Eyal Kushnir, Lam M. Nguyen [25]Unsupervised Learning from Public Tabular Datasets. Filed on December 15, 2022 Thanh Lam Hoang, Gabriele Picco, Lam M. Nguyen, Dzung Tien Phan [24]Providing Trained Reinforcement Learning Systems. Filed on December 12, 2022 Lam M. Nguyen, Wang Zhang, Subhro Das, Alexandre Megretski, Luca Daniel [23]Active Learning in Model Training. Filed on November 22, 2022 Dzung Tien Phan, Huozhi Zhou, Lam M. Nguyen, Chandrasekhara K. Reddy, Jayant R. Kalagnanam [22]Automated Decision Optimization for Maintenance of Physical Assets. Filed on October 31, 2022 Nianjun Zhou, Pavankumar Murali, Dzung T. Phan, Lam M. Nguyen Adversarial Attacks for Improving Cooperative Multi-Agent Reinforcement Learning [21]Systems. Filed on September 23, 2022 Nhan Huu Pham, Lam M. Nguyen, Jie Chen, Thanh Lam Hoang, Subhro Das [20] Training Neural Networks with Convergence to a Global Minimum. Filed on September 23, 2022 Lam M. Nguyen [19]Intelligent Dynamic Condition-based Infrastructure Maintenance Scheduling. Filed on September 21, 2022 Pavankumar Murali, Dzung Tien Phan, Nianjun Zhou, Lam M. Nguyen

> Machine Learning-based Decision Framework for Physical Systems. Filed on September 20. 2022 Dzung Tien Phan, Lam M. Nguyen

[18]

[17]	Certification-based Robust Training by Refining Decision Boundary. Filed on September 19, 2022
	Lam M. Nguyen, Wang Zhang, Subhro Das, Pin-Yu Chen, Alexandre Megretski, Luca Daniel
[16]	Training A Neural Network Using an Accelerated Gradient with Shuffling. Filed on July 14, 2022  Lam M. Nguyen, Trang H. Tran
[15]	System and Method for unsupervised Learning of Semantic Graph from textual data and language generation from Semantic grapH via Reinforcement learning. Filed on July 11, 2022  Thanh Lam Hoang, Dzung Tien Phan, Gabriele Picco, Lam M. Nguyen, Marco Luca
[14]	Sbodio, Vanessa Lopez Garcia  Integrated Machine Learning Prediction and Optimization for Decision-Making. Filed on  March 30, 2022  Dzung T. Phan, Long Vu, Lam M. Nguyen, Dharmashankar Subramanian
[13]	Interpretable Clustering via Multi-Polytope Machines. Filed on February 18, 2022  Dzung T. Phan, Connor Lawless, Jayant R. Kalagnanam, Lam M. Nguyen, Chandrasekhara K. Reddy
[12]	Blending Graph Predictions. Filed on February 08, 2022  Thanh Lam Hoang, Gabriele Picco, Yufang Hou, Young-Suk Lee, Lam M. Nguyen, Dzung Tien Phan, Vanessa Lopez Garcia, Ramon Fernandez Astudillo
[11]	Optimal Control of Dynamic Systems via Linearizable Deep Learning. Filed on February 07, 2022  Dung Tien Phan, Jayant R. Kalagnanam, Lam M. Nguyen
[10]	Federated Learning for Training Machine Learning Models. Filed on December 21, 2021  Lam M. Nguyen, Dung Tien Phan, Jayant R. Kalagnanam
[9]	Boosting Classification and Regression Tree Performance with Dimension Reduction.  Filed on December 14, 2021  Dzung T. Phan, Michael Huang, Pavankumar Murali, Lam M. Nguyen
[8]	Optimizer Agnostic Explanation System for Large Scale Schedules. Filed on November 23, 2021  Surya Shravan Kumar Sajja, Kanthi Sarpatwar, Lam M. Nguyen, Yuan Yuan Jia,
[7]	Stephane Michel, Roman Vaculin  Reasonable Language Model Learning for Text Generation from a Knowledge Graph.  Filed on November 02, 2021  Hoang Thanh Lam, Dzung T. Phan, Gabriele Picco, Lam M. Nguyen, Vanessa Lopez
[6]	Garcia  Multi-Polytope Machine for Classification. Filed on September 30, 2021  Dzung T. Phan, Lam M. Nguyen, Jayant R. Kalagnanam, Chandrasekhara K. Reddy, Srideepika Jayaraman
[5]	Site-Wide Optimization for Mixed Regression Models and Mixed Control Variables. Filed on May 25, 2021  Dung Tien Phan, Nhan H. Pham, Lam M. Nguyen
[4]	System-level Control using Tree-based Regression with Outlier Removal. Filed on August 20, 2020  Dung Tien Phan, Pavankumar Murali, Lam M. Nguyen
[3]	A Method for Tuning Hyper-Parameters for Classification. Filed on July 27, 2020  Dung Tien Phan, Hongsheng Liu, Lam M. Nguyen
[2]	A Method and System for Automated Generation of Optimization Model for System-Wide Plant Optimization. Filed on July 24, 2020  Dung Tien Phan, Lam M. Nguyen, Pavankumar Murali, Nianjun Zhou

[1] Compression of Deep Neural Networks. Filed on March 13, 2019. US Patent Application

20200293876

Dzung T. Phan, Lam M. Nguyen, Nam H. Nguyen, Jayant R. Kalagnanam

THESES

2018 A Service System with On-Demand Agents, Stochastic Gradient Algorithms and the

SARAH Algorithm.
Lam M. Nguyen

PhD dissertation, Lehigh University, Bethlehem, PA

Elizabeth V. Stout Dissertation Award

2008 Methods for Detecting Hidden Period in Some Economics Processes.

Lam M. Nguyen

Undergraduate thesis, Lomonosov Moscow State University, Moscow, Russia

ORGANIZING WORKSHOPS

[2] When Machine Learning meets Dynamical Systems: Theory and Applications.

Lam M. Nguyen, Trang H. Tran, Wang Zhang, Subhro Das, Tsui-Wei Weng Workshop at The 37th Conference on Artificial Intelligence (AAAI 2023), 2023

[1] New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and

Data Ownership.

Nghia Hoang\*, Lam M. Nguyen\*, Pin-Yu Chen, Tsui-Wei Weng, Sara Magliacane,

Bryan Kian Hsiang Low, Anoop Deoras

Workshop at The 35th Conference on Neural Information Processing Systems (NeurIPS

**2021**), 2021

INVITED TALKS

10/2023 On the Convergence to a Global Solution of Shuffling-Type Gradient Algorithms.

INFORMS Annual Meeting, Phoenix, AZ

10/2022 New Perspective On The Convergence To A Global Solution Of Finite-sum Optimization.

INFORMS Annual Meeting, Indianapolis, IN

09/2022 Nesterov Accelerated Shuffling Gradient Method for Convex Optimization.

Johns Hopkins University, Baltimore, MD

10/2021 Hogwild! Over Distributed Local Data Sets With Linearly Increasing Mini-batch Sizes.

INFORMS Annual Meeting, Anaheim, CA

11/2020 A Unified Convergence Analysis for Shuffling-Type Gradient Methods.

INFORMS Annual Meeting, Virtual Conference

10/2019 Finite-Sum Smooth Optimization with SARAH.

INFORMS Annual Meeting, Seattle, WA

11/2018 Inexact SARAH for Solving Stochastic Optimization Problems.

INFORMS Annual Meeting, Phoenix, AZ

08/2018 Inexact SARAH for Solving Stochastic Optimization Problems.

DIMACS/TRIPODS/MOPTA, Bethlehem, PA

03/2018 When does stochastic gradient algorithm work well?

INFORMS Optimization Society Conference, Denver, CO

10/2017 SARAH: Stochastic Recursive Gradient Algorithm.

INFORMS Annual Meeting, Houston, TX

08/2017 SARAH Algorithm.

IBM Thomas J. Watson Research Center, Yorktown Heights, NY

11/2016 A Queueing System with On-demand Servers: Local Stability of Fluid Limits.

INFORMS Annual Meeting, Nashville, TN

08/2016 A Queueing System with On-demand Servers: Local Stability of Fluid Limits.

Modeling and Optimization: Theory and Applications, Bethlehem, PA

## PROFESSIONAL ACTIVITIES

	MEMBER
06/2020 - Present	Editorial Board, Journal of Machine Learning Research
06/2021 - Present	Editorial Board, Machine Learning
01/2022 – Present	Editorial Board, IEEE Transactions on Neural Networks and Learning Systems
06/2022 - Present	Editorial Board, Journal of Optimization Theory and Applications
01/2022 - 12/2022	Editorial Board, Neural Networks
2023	Program Committee, "When Machine Learning meets Dynamical Systems: Theory and Applications (MLmDS 2023)", AAAI 2023 Workshop
2021	<b>Program Committee</b> , "New Frontiers in Federated Learning: Privacy, Fairness, Robustness, Personalization and Data Ownership (NFFL 2021)", NeurIPS 2021 Workshop
2020	Program Committee, "Optimization for Machine Learning (OPT 2020)", NeurIPS 2020 Workshop
2018	<b>Program Committee</b> , "Modern Trends in Nonconvex Optimization for Machine Learning", ICML 2018 Workshop
	REVIEWER / PROGRAM COMMITTEE (PEER-REVIEWED CONFERENCES)
2017 - 2019	International Conference on Machine Learning (ICML)
2017 - 2021	Conference on Neural Information Processing Systems (NIPS/NeurIPS)
2018 - 2020	International Conference on Learning Representations (ICLR)
2019 - 2020	International Conference on Artificial Intelligence and Statistics (AISTATS)
2021 - 2022	Conference on Learning Theory (COLT)
2019 - 2021	AAAI Conference on Artificial Intelligence (AAAI)
2020	International Joint Conferences on Artificial Intelligence (IJCAI)
2019 - 2022	IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)
2019 - 2021	IEEE International Conference on Computer Vision (ICCV)
2020	European Conference on Computer Vision (ECCV)
2019 - 2021	Conference on Uncertainty in Artificial Intelligence (UAI)
	REVIEWER (PEER-REVIEWED JOURNALS)
2018 - 2022	Journal of Machine Learning Research
2020 - 2022	Mathematical Programming
2020 - 2021	SIAM Journal on Optimization
2021	SIAM Journal on Numerical Analysis
2020 - 2021	IEEE Transactions on Neural Networks and Learning Systems
2019 - 2020	IEEE Transactions on Signal Processing
2019	Artificial Intelligence
2018	Optimization Methods and Software
2020	SIAM Journal on Mathematics of Data Science
	SESSION CHAIR / ORGANIZER (CONFERENCES)
	International Conference on Machine Learning (ICML)
2022	- Sessions "OPT: Non-Convex" and "Optimization/Reinforcement Learning"
2021	- Sessions "Optimization (Stochastic)" and "Optimization (Nonconvex)"
	International Conference on Learning Representations (ICLR)
2021	- Session "Oral Session 6"
	International Conference on Artificial Intelligence and Statistics (AISTATS)
2021	- Session "Theory and Practice of Machine Learning"
	INFORMS Annual Meeting

2022	- Session "Optimization for Machine Learning"
2022	- Session "Recent Advances in Stochastic Gradient Algorithms"
2020	- Session "Recent Advances in Stochastic Gradient Algorithms for Machine Learning"
2019	- Session "Fast and Provable Nonconvex Optimization Algorithms in Machine Learning"
2018	- Session "Recent Advances in Optimization Methods for Machine Learning"
2010	DIMACS/TRIPODS/MOPTA
2018	- Sessions "Sparse Optimization" and "Stochastic Gradient Descent"
2010	IBM ACTIVITIES
01/2022 - Present	Champion, International Conference on Machine Learning (ICML)
11/2021 - Present	Member, Invention Development Team (IDT)
07/2021 Present	Champion, Professional Interest Community (PIC) - Learning
2022	Member, Research AI Pillar Accomplishment Committee
2021 - 2023	Reviewer, Pat Goldberg Memorial Best Paper Competition
2020	Reviewer, IBM Ph.D. Fellowships
2020	SOCIETY MEMBERSHIPS
2022 – Present	Association for the Advancement of Artificial Intelligence (AAAI)
2016 – Present	Society for Industrial and Applied Mathematics (SIAM)
2014 - Present	The Institute for Operations Research and the Management Sciences (INFORMS)
2014 - Present	Beta Gamma Sigma (The International Business Honor Society)
2011 11000110	Deta Gamma Sigma (The international Dasmess Honor Society)
MENTORSHIP	
	PH.D. STUDENTS
03/2021 – Present	Wang Zhang, Ph.D. student, Department of Mechanical Engineering, Massachusetts Institute of Technology (co-advise with Prof. Luca Daniel).
10/2019 – Present	<b>Trang H. Tran</b> , Ph.D. student, School of Operations Research and Information Engineering, <i>Cornell University</i> (co-advise with Prof. Katya Scheinberg).
08/2018 - 12/2021	<b>Nhan H. Pham</b> , Ph.D. student, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill (co-advise with Prof. Quoc Tran-Dinh). Now at <i>IBM Research</i> , USA.
	IBM RESEARCH INTERNS
06/2023 - 09/2023	<b>Quang M. Nguyen</b> , Ph.D. student, Department of Electrical Engineering and Computer Science, <i>Massachusetts Institute of Technology</i> .
06/2022 - 09/2022	<b>Tuomas Oikarinen</b> , Ph.D. student, Department of Computer Science and Engineering, University of California San Diego.
05/2022 - 08/2022	Vinicius Lima Silva, Ph.D. student, Department of Electrical and Systems Engineering, University of Pennsylvania.
05/2023 - 08/2023, 05/2022 - 08/2022	<b>Trang H. Tran</b> , Ph.D. student, School of Operations Research and Information Engineering, <i>Cornell University</i> .
05/2021 - 08/2021	<b>Connor Lawless</b> , Ph.D. student, School of Operations Research and Information Engineering, <i>Cornell University</i> .
05/2021 - 08/2021	<b>Huozhi Zhou</b> , Ph.D. student, Department of Electrical and Computer Engineering, University of Illinois Urbana-Champaign.
05/2021 - 08/2021	Nathanael Assefa, Ph.D. student, Department of Computer Science, <i>University of Illinois Urbana-Champaign</i> .
06/2020 - 09/2020	Michael Huang, Ph.D. student, Department of Data Science and Operations, Marshall School of Business, <i>University of Southern California</i> .

06/2020 - 08/2020Nhan H. Pham, Ph.D. student, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill (student of Prof. Quoc Tran-Dinh) (IBM Research Intern). Now at IBM Research, USA. 05/2019 - 12/2019Hongsheng Liu, Ph.D. student, Department of Statistics and Operations Research, University of North Carolina at Chapel Hill. Now at Huawei Technologies Co., Ltd., 01/2019 - 08/2019Haoran Zhu, Ph.D. student, Department of Industrial and Systems Engineering, University of Wisconsin – Madison. Now at Microsoft, USA. MIT-IBM PROJECTS 04/2023 - Present Martin Ma, M.E. Student, School of Engineering and Applied Sciences, Harvard University. 03/2021 - Present Wang Zhang, Ph.D. student, Department of Mechanical Engineering, Massachusetts Institute of Technology (student of Prof. Luca Daniel). 09/2020 - 09/2021Vindula Jayawardana, Ph.D. student, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology (student of Prof. Cathy Wu). MIT SUPERUROP UNDERGRADUATE RESEARCH PROGRAM 06/2022 - 05/2023Angelos Assos, Undergraduate student, Computer Science and Mathematics, Massachusetts Institute of Technology (co-advise with Prof. Luca Daniel). EXTERNAL STUDENTS 09/2022 - PresentAnh Duy Nguyen, Ph.D. student, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign. 10/2021 - 12/2022Linbo Liu, Ph.D. student, Department of Mathematics, University of California San 06/2021 - PresentQuang M. Nguyen, Ph.D. student, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology. 06/2021 - Present Hoang H. Nguyen, Ph.D. student, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology. Yilan Chen, Ph.D. student, Department of Computer Science and Engineering, Uni-03/2021 - 12/2022versity of California San Diego (student of Prof. Tsui-Wei Weng). 01/2019 - 12/2022Toan N. Nguyen, Ph.D. student, Department of Computer Science and Engineering, University of Connecticut (student of Prof. Marten van Dijk). 01/2019 - 11/2021Nhuong V. Nguyen, Ph.D. student, Department of Computer Science and Engineering, University of Connecticut (student of Prof. Marten van Dijk).

#### PH.D. THESIS COMMITTEE MEMBERSHIP

- 10/2021 Present **Trang H. Tran**, Ph.D. student, School of Operations Research and Information Engineering, Cornell University (student of Prof. Katya Scheinberg).
- 09/2020 06/2022 **Deyi Liu**, Ph.D. student, Department of Statistics and Operations Research, *University* of North Carolina at Chapel Hill (student of Prof. Quoc Tran-Dinh). Now at Bytedance, USA.

#### OTHER WORK EXPERIENCE

09/2014 - 05/2015	Teaching Assistant, Lehigh University, Bethlehem, PA
	Courses: Engineering Probability (ISE 111), Applied Engineering Statistics (ISE 121)
05/2013 - 08/2013	Graduate Assistant (Web Developer), College of Business, McNeese State Univer-
	sity, Lake Charles, LA

01/2012 - 12/2013Graduate (Teaching) Assistant, McNeese State University, Lake Charles, LA Courses: Human Resource Management (MGMT 310), Staffing (MGMT 315), Strategic

Management (MGMT 481), Management Theory and Organizational Behavior (MGMT 604), Issues in Global Business (BADM 218), Entrepreneurial Finance for Small Business

(FIN 308)

09/2008 - 08/2009Software Engineer, FPT Software Company, Ho Chi Minh City, Vietnam 09/2007 - 05/2008Teaching Assistant, Lomonosov Moscow State University, Moscow, Russia

Courses: Mathematical Analysis (Calculus), Linear Algebra and Analytic Geometry

#### IBM RESEARCH ACCOMPLISHMENTS

2022	Federated Learning Security and Privacy (O-level)
2022	Dynamic Approaches for Machine Learning (A-level)

2022 Regression Optimization for Heavy Processing Industries (A-level)

2022 Combinatorial Sparsity for AI (A-level)

2021 Stochastic Gradient Methods: Theory and Applications (A-level) 2019 SROM: Smarter Resource & Operations Management (A-level)

HONORS & AWARDS	
2023	2022 Pat Goldberg Memorial Best Paper Award
2023	IBM 9th Plateau Invention Achievement Award
2023	IBM Outstanding Technical Achievement Award, "Dynamic Approaches for Machine Learning"
2023	IBM Outstanding Technical Achievement Award, "Regression Optimization for Heavy Processing Industries"
2023	IBM Outstanding Technical Achievement Award, "Federated Learning Security and Privacy"
2023	IBM Outstanding Technical Achievement Award, "Combinatorial Sparsity for $AI$ "
2023	IBM 8th Plateau Invention Achievement Award
2022	IBM Master Inventor
2022	IBM 7th Plateau Invention Achievement Award
2022	IBM 6th Plateau Invention Achievement Award
2022	IBM Outstanding Technical Achievement Award, "Stochastic Gradient Methods: Theory and Applications"
2022	IBM 5th Plateau Invention Achievement Award
2022	IBM 4th Plateau Invention Achievement Award
2021	IBM 3rd Plateau Invention Achievement Award
2020	IRM 2nd Plateau Invention Achievement Award

2020IBM 2nd Plateau Invention Achievement Award

2020 IBM Research Division Award

2020 IBM Outstanding Technical Achievement Award, "SROM: Smarter Resource & Opera-

tions Management"

2020 IBM 1st Plateau Invention Achievement Award

2019 NeurIPS 2019 Top Reviewers

2019 Elizabeth V. Stout Dissertation Award, Lehigh University, Bethlehem, PA 2018 Van Hoesen Family Best Publication Award, Lehigh University, Bethlehem, PA 2016 - 2017Dean's Doctoral Fellowship (RCEAS), Lehigh University, Bethlehem, PA

2014 - 2015Dean's Doctoral Assistantship, Lehigh University, Bethlehem, PA

2014 Beta Gamma Sigma (Academic Honor Society)