Lam M. Nguyen

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FIELDS OF INTEREST

Optimization for Large Scale Problems, Machine Learning, Deep Learning, Reinforcement Learning

EDUCATION

2014 – 2018	**Ph.D.** in Operations Research, Department of Industrial and Systems Engineering, ***Lehigh University***, Bethlehem, PA Thesis advisor: Dr. Katya Scheinberg 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
2004 – 2008	**B.S.** in Applied Mathematics and Computer Science, Faculty of Computational Mathematics and Cybernetics, ***Lomonosov Moscow State University***, Moscow, Russia Thesis advisor: Prof. Vladimir I. Dmitriev

RESEARCH EXPERIENCE

09/2018 –	**Post-Doctoral Fellow**, *IBM T.J. Watson Research Center*, Yorktown Heights, NY Research areas: Optimization, Machine Learning, Deep Learning, Reinforcement Learning
05/2018 – 08/2018	**Research Intern**, *IBM T.J. Watson Research Center*, Yorktown Heights, NY Research areas: Optimization, Machine Learning, Deep Learning, Reinforcement Learning
08/2017 – 05/2018	**Research Co-op**, *IBM T.J. Watson Research Center*, Yorktown Heights, NY Research areas: Optimization, Machine Learning, Deep Learning o Implementing a Python (TensorFlow) library for sparsification of deep neural networks o Improving machine learning algorithms for training deep neural networks Technical: Python, TensorFlow
06/2017 – 08/2017	**Research Intern**, *IBM T.J. Watson Research Center*, Yorktown Heights, NY Research areas: Optimization, Machine Learning, Deep Learning o Developing sparsification methods for deep neural networks using optimization models Technical: Python, TensorFlow
08/2014 – Present	**Research Assistant**, *Lehigh University*, Bethlehem, PA Research areas: Optimization for Large Scale Problems, Machine Learning, Deep Learning, Stochastic Models, Optimal Control o Developing and improving machine learning algorithms in order to solve complex problems such as some structured prediction problems and neural network learning o Proposed a new algorithm named SARAH, which can solve convex and non-convex large scale optimization finite-sum problems o Developed stochastic models of service systems with on-demand agent invitations

and designed real-time adaptive agent invitation schemes to minimize both waiting-times of customers and agents

Technical: MATLAB, Python, PyTorch, TensorFlow, C++

12/2011 – 12/2013 **Research Assistant,** *McNeese State University*, Lake Charles, LA

Research areas: Operations Management and Finance

- Published a paper related on investigating the effect of the financial crisis on CEO compensation using regression analysis to analyze the real data
- Developed a simulation model based on the given data from Calcasieu Parish School Board and provided suggestions to improve the performance of the system, which reduced 40% cost for employees

Technical: SAS, MATLAB, Arena Simulation

TEACHING EXPERIENCE

08/2014 – 05/2015 **Teaching Assistant**, *Lehigh University*, Bethlehem, PA

Courses: Engineering Probability (ISE 111), Applied Engineering Statistics (ISE 121)

12/2011 – 12/2013 **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)

09/2007 – 05/2008 **Teaching Assistant,** *Lomonosov Moscow State University*, Moscow, Russia

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

OTHER WORK EXPERIENCE

05/2013 – 08/2013 **Web Developer,** *McNeese State University*, Lake Charles, LA

- Developed and maintained a website for College of Business

Technical: PHP, JavaScript

09/2008 – 09/2009 **Software Engineer**, *FPT Software Company*, Ho Chi Minh City, Vietnam

- Analyzed functional requirements, developed and tested software applications

Technical: Java, C++, SQL, .NET (C#), JavaScript

PUBLICATIONS

[5] **Lam M. Nguyen**, Phuong Ha Nguyen, Marten van Dijk, Peter Richtarik, Katya Scheinberg, and Martin Takac. SGD and Hogwild! Convergence Without the Bounded Gradients Assumption. *The 35th International Conference on Machine Learning (ICML 2018)*, PMLR 80, 2018 (*25% acceptance rate*)

[4] **Lam M. Nguyen**, Jie Liu, Katya Scheinberg, and Martin Takac. SARAH: A Novel Method for Machine Learning Problems Using Stochastic Recursive Gradient. *The 34th International Conference on Machine Learning (ICML 2017)*, PMLR 70:2613-2621, 2017 (*25% acceptance rate*)

Van Hoesen Family Best Publication Award

[3] **Lam M. Nguyen**, and Alexander L. Stolyar. A Queueing System with On-demand Servers: Local Stability of Fluid Limits. *Queueing Systems*, 1-26, Springer, 2017

[2] **Lam M. Nguyen**, and Alexander L. Stolyar. A Service System with Randomly Behaving On-demand Agents. *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]	Prasad Vemala, **Lam Nguyen**, Dung Nguyen, and Alekhya Kommasani. CEO Compensation: Does Financial Crisis Matter? *International Business Research*, 7(4):125-131, 2014

E-PRINTS & WORKING PAPERS

[3]	**Lam M. Nguyen**, Katya Scheinberg, and Martin Takac. Inexact SARAH for Solving Stochastic Optimization Problems. *In preparation*
[2]	**Lam M. Nguyen**, Nam H. Nguyen, Dzung T. Phan, Jayant R. Kalagnanam, and Katya Scheinberg. When Does Stochastic Gradient Algorithm Work Well? *arXiv preprint, 2018*
[1]	**Lam M. Nguyen**, Jie Liu, Katya Scheinberg, and Martin Takac. Stochastic Recursive Gradient Algorithm for Nonconvex Optimization. *arXiv preprint, 2017*

INVITED TALKS

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 T.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

SELECTED PROJECTS & UNDERGRADUATE THESIS

2016	Random matrices. *Optimization Methods in Machine Learning, Lehigh University* • Developed methods for constructing second order regression models in order to solve stochastic optimization problems
2015	Compressed Sensing. *Computational Methods in Optimization, Lehigh University* • Used of l_1-regularized lasso model to recover pictures with 50-70% missing pixels
2015	A MATLAB Package: Algorithms for unconstrained optimization problems. *Nonlinear Optimization, Lehigh University* • Implemented multiple algorithms including steepest descent, Newton's method, quasi-Newton (SR1 and BFGS) with backtracking line search and Wolfe line search, and trust region method with conjugate gradient subproblem solver
2012	Calcasieu Parish School Board technical center operations. *Real project* • Developed a simulation model based on the given data from Calcasieu Parish School Board to evaluate the performance of the center • Provided suggestions to improve the performance of the system, which reduced 40% cost for employees
2008	Methods for detecting hidden period in some economics processes. *Undergraduate*

thesis, *Lomonosov Moscow State University*, Moscow, Russia
- Collected and analyzed the data of Nikkei 225 (stock market index) from 01/01/2000 to 03/31/2008 using some theoretical methods to predict correctly that Nikkei 225 would decrease during the period of 03/2008 – 03/2009

PROFESSIONAL ACTIVITIES

2018	**Program Committee (Reviewer)**, The 7th International Conference on Learning Representations (*ICLR 2019*)
2018	**Program Committee (Reviewer)**, The 33rd AAAI Conference on Artificial Intelligence (*AAAI 2019*)
2018	**Reviewer**, Optimization Methods and Software, 2018
2018	**Reviewer**, Journal of Machine Learning Research, 2018
2018	**Session Chair**, "Recent Advances in Optimization Methods for Machine Learning", INFORMS Annual Meeting 2018
2018	**Organizer**, "Sparse Optimization" and "Stochastic Gradient Descent", TRIPODS/MOPTA 2018
2018	**Program Committee (Reviewer)**, The 32nd Annual Conference on Neural Information Processing Systems (*NIPS 2018*)
2018	**Program Committee (Reviewer)**, "Modern Trends in Nonconvex Optimization for Machine Learning", ICML 2018 Workshop
2018	**Program Committee (Reviewer)**, The 35th International Conference on Machine Learning (*ICML 2018*)
2017	**Program Committee (Reviewer)**, The 6th International Conference on Learning Representations (*ICLR 2018*)
2017	**Program Committee (Reviewer)**, The 31st Annual Conference on Neural Information Processing Systems (*NIPS 2017*)
2017	**Program Committee (Reviewer)**, The 34th International Conference on Machine Learning (*ICML 2017*)

PROFESSIONAL MEMBERSHIPS

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)

HONORS & AWARDS

2018	Van Hoesen Family Best Publication Award, *Lehigh University*, Bethlehem, PA
2016 – 2017	Dean's Doctoral Fellowship (RCEAS), *Lehigh University*, Bethlehem, PA
2014 – 2015	Dean's Doctoral Assistantship, *Lehigh University*, Bethlehem, PA
2014	Beta Gamma Sigma (Academic Honor Society)
2011 – 2013	Dore Graduate Stipends, *McNeese State University*, Lake Charles, LA

SKILLS & QUALIFICATIONS

Technical	Python, TensorFlow, PyTorch, MATLAB
	C++, Java, SAS, AMPL, SQL, C#, JavaScript, PHP, Linux
Language	Vietnamese (Native), English (Proficient), Russian (Proficient), French (Basic)

Leadership | Chief Administrator, Olympia Vietnam Forum and Community (2005 – 2015)

REFERENCES

Dr. **Katya Scheinberg** (Research Advisor), Harvey E. Wagner Endowed Chair Professor
Department of Industrial and Systems Engineering, Lehigh University
katyas@lehigh.edu
http://coral.ise.lehigh.edu/katyas/

Dr. **Martin Takáč** (Research Co-advisor), Assistant Professor
Department of Industrial and Systems Engineering, Lehigh University
takac@lehigh.edu
http://mtakac.com/

Dr. **Alexander Stolyar** (Previous Advisor), Professor
Department of Industrial and Enterprise Systems Engineering, University of Illinois, Urbana-Champaign
stolyar@illinois.edu
http://stolyar.ise.illinois.edu/