

Ali Shafahi

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EDUCATION

- PhD in Computer Science** Jan 2017 - Expected: Spring 2020
University of Maryland, College Park, MD, USA
Dissertation: Scalable Adversarial Machine Learning
Advisor: Tom Goldstein
GPA: 4.0/4.0
- MS in Computer Science** Jan 2017 - Dec 2019
University of Maryland, College Park, MD, USA
Scholarly Paper: Clean-label Poisoning Attacks on Neural Nets
Advisor: Tom Goldstein
GPA: 4.0/4.0
- PhD in Project Management/Operations Research** Jun 2012 - Dec 2016
University of Maryland, College Park, MD, USA
Dissertation: Mathematical Model and Framework for Multi-Phase Project Optimization
Advisor: Ali Haghani
GPA: 4.0/4.0
- MS in Civil Engineering/Operations Research** Aug 2010 - May 2012
University of Maryland, College Park, MD, USA
Thesis: Bidding on Projects Based on Previous Works and Eminence, A Contractors Point of View
Advisor: Ali Haghani
GPA: 4.0/4.0
- BS in Civil Engineering** Sep 2006 - Jan 2010
Sharif University of Technology, Tehran, Iran
Thesis: Application of the Fuzzy Theory in the Critical Path Method with Non-Crisp Activity Times
Advisor: Mohammad Mehdi Mortaheb
GPA: 17.1/20.0

PUBLICATIONS

Machine Learning/Computer Science Conference Publications

- [1] “WITCHCRAFT: Efficient PGD Attacks With Random Step Size”, Pingsi-Yeh Chiang*, Jonas Geiping*, Micah Goldblum*, Tom Goldstein*, Renkun Ni*, Steven Reich*, **Ali Shafahi***. *International Conference on Acoustics, Speech, and Signal Processing (ICASSP 20)*.
- [2] “Adversarially Robust Transfer Learning”, **Ali Shafahi***, Parsa Saadatpanah*, Chen Zhu*, Amin Ghiasi, Cristoph Studer, David Jacobs, Tom Goldstein. *International Conference on Learning Representations (ICLR 20)*.
- [3] “Breaking Certified Defenses: Semantic Adversarial Examples with Spoofed Robustness Certificates”, Amin Ghiasi, **Ali Shafahi**, Tom Goldstein. *International Conference on Learning Representations (ICLR 20)*.
- [4] “Universal Adversarial Training”, **Ali Shafahi***, Mahyar Najibi*, Zheng Xu*, John Dickerson, Larry Davis, Tom Goldstein. *Conference on Artificial Intelligence (AAAI 20)*.
- [5] “Adversarial Training for Free!”, **Ali Shafahi**, Mahyar Najibi, Amin Ghiasi, Zheng Xu, John Dickerson, Cristoph Studer, Larry Davis, Gavin Taylor, Tom Goldstein. *Conference on Neural Information Processing Systems (NeurIPS 19)*.

- [6] “Batch-wise Logit-Similarity: Generalizing Logit-Squeezing and Label-Smoothing”, **Ali Shafahi**, Amin Ghiasi, Mahyar Najibi, Furong Huang, John Dickerson, Tom Goldstein. *British Machine Vision Conference (BMVC 19)*.
- [7] “Transferable Clean-Label Poisoning Attacks on Deep Neural Nets”, Chen Zhu*, W. Ronny Huang*, **Ali Shafahi**, Hengduo Li, Gavin Taylor, Cristoph Studer, Tom Goldstein. *International Conference on Machine Learning (ICML 19)*.
- [8] “Are adversarial examples inevitable?”, **Ali Shafahi**, Ronny Huang, Cristoph Studer, Soheil Feizi, Tom Goldstein. *International Conference on Learning Representations (ICLR 19)*.

[9] “Poison frogs! targeted clean-label poisoning attacks on neural networks”, **Ali Shafahi***, Ronny Huang*, Mahyar Najibi, Octavian Suci, Cristoph Studer, Tudor Dumitras, Tom Goldstein. *Conference on Neural Information Processing Systems (NeurIPS 18)*.

Operations Research/Transportation Peer-Reviewed Journal Publications

- [10] “SpeedRoute: fast, efficient solutions for school bus routing problems”, **Ali Shafahi**, Zhongxiang Wang, Ali Haghani. *Transportation Research Part B: methodological 2018*.
- [11] “Project selection and scheduling for phase-able projects with interdependencies among phases”, **Ali Shafahi**, Ali Haghani. *Automation in Construction 2018*.
- [12] “Balanced scheduling of school bus trips using a perfect matching heuristic”, **Ali Shafahi**, Sanaz Aliari, Ali Haghani. *Transportation Research Record 2018*.
- [13] “Solving the school bus routing problem by maximizing trip compatibility”, **Ali Shafahi**, Zhongxiang Wang, Ali Haghani. *Transportation Research Record 2017 [TRB ADB-30 best paper award]*.
- [14] “A Stochastic Emergency Response Location Model Considering Secondary Incidents on Freeways”, Hyoshin Park, **Ali Shafahi**, Ali Haghani. *IEEE Transactions on Intelligent Transportation Systems (ITS IEEE 2016)*.
- [15] “Generalized maximum benefit multiple Chinese postman problem”, **Ali Shafahi**, Ali Haghani. *Transportation Research Part C: Emerging Technologies 2015*.
- [16] “Modeling Contractors Project selection and Markup Decisions Influenced by Eminence”, **Ali Shafahi**, Ali Haghani. *International Journal of Project Management 2014*.
- [17] “Application of the Fuzzy Theory in the Critical Path Method with Non-Crisp Activity Times”, **Ali Shafahi**, Mohammad Mehdi Mortaheb. *Sharif Mag. 2010*.

Operations Research/Transportation Conference Proceedings

- [18] “Balancing School Bus Routes by Balancing Route Durations and Number of Trips Assigned to Each Route”, **Ali Shafahi***, Zhongxiang Wang*, Ali Haghani. *Transportation Research Board Annual Meeting (TRB 20)*.
- [19] “Solving The Joint Multi-School Bell Time and Route Scheduling Optimization Problem”, Ali Haghani, **Ali Shafahi**, Zhongxiang Wang. *Triennial Symposium on Transportation Analysis (Tristan 19)*.
- [20] “PASS: enhancing school stop selection and trip generation by adding Partial-load Assignment and using Single-Stop vehicles”, **Ali Shafahi**, Zhongxiang Wang, Kiana Roshan Zamir, Ali Haghani. *Transportation Research Board Annual Meeting (TRB 19)*.
- [21] “Online Emergency Vehicle Dispatching with Look-Ahead on a Transportation Network”, Hyoshin Park, **Ali Shafahi**, Ali Haghani. *Transportation Research Board Annual Meeting (TRB 16)*.
- [22] “Stochastic Emergency Response Units Allocation Considering Secondary Incident Occurrences”, Hyoshin Park, **Ali Shafahi**, Ali Haghani. *Transportation Research Board Annual Meeting (TRB 16)*.
- [23] “Balanced Routing of Patrolling Vehicles Focusing on Areas with Historical Crime”, **Ali Shafahi**, Ali Haghani. *Transportation Research Board Annual Meeting (TRB 15)*.
- [24] “A Linearization Approach for Project Selection with Interdependencies in Resource Costs”, **Ali Shafahi**, Ali Haghani. *International Conference on Operations Research and Enterprise Systems (ICORES 13)*.

Operations Research/Transportation Presentations

- [25] “Trade-off Analysis for New Product Warranty Design”, Amir Kashani, Peter Sandborn, **Ali Shafahi**. *Institute for Operations Research and the Management Sciences Annual Meeting (INFORMS 13)*.
- [26] “The impact of reputation on project selection”, **Ali Shafahi**, Ali Haghani, Masoud Hamed. *Institute for Operations Research and the Management Sciences Annual Meeting (INFORMS 12)*.

Computer Science Preprints

[27] “*Adversarial Attacks on Copyright Detection Systems*”, Parsa Saadatpanah, **Ali Shafahi**, Tom Goldstein.

[28] “*Label Smoothing and Logit Squeezing: A Replacement for Adversarial Training?*”, **Ali Shafahi***, Amin Ghiasi*, Furong Huang, Tom Goldstein.

Computer Science Working Papers

[29] “*Exploiting Adaptive Networks for Robustness*”, Zheng Xu, **Ali Shafahi**, Tom Goldstein.

[30] “*How to break Kaggle? Learning with minimum number of queries*”, **Ali Shafahi**, Saeed Seddighin, Ehsan Emamjomezadeh, Tom Goldstein.

AWARDS

- **2017 Stella Dafermos Best Paper Award**, *Best Paper Award of TRBs Network Modeling Committee*
- **Merit Fellowship**, *University of Maryland*, 2017-2018
- **Outstanding Graduate Assistant**, *University of Maryland*, 2016
- **Stanley R. Zupnik Fellowship**, *University of Maryland*, 2015
- **Exceptional talent award**, *Sharif University of Technology*, 2009
- **Ranked among top 0.5%** in the nationwide undergraduate entrance exam of Iranian universities with more than 500000 participants, 2006.

STUDENTS MENTORED

Robert Pangborn , <i>UMD bike-share programs location optimization</i>	Fall 2015
Lisa Chauvet , <i>Howard county public school bus blocking problem</i>	Summer 2015
Jason Weinberg , <i>Scheduling for football games</i>	Summer 2015

TEACHING EXPERIENCE

ENCE 360 Analysis of Civil Engineering Systems

- **Instructor** Spring 2018
- **Co-instructor** Fall 2013, Spring 2014, Fall 2014, Spring 2015, Fall 2015, Spring 2016

ENCE 677 OR models for Transportation Systems Analysis

- **Co-instructor** Fall 2015

GRADUATE TEACHING ASSISTANTSHIPS

CMSC 764 Advanced numerical optimization Spring 2019

- **Instructor:** Tom Goldstein

CMSC 351 Algorithms Spring & Fall 2017

- **Instructor:** Clyde Kruskal

CMSC 474 Introduction to computational game theory Fall 2016

- **Instructor:** Dana Nau

ENCE 360 Analysis of Civil Engineering Systems Falls 2010-15 & Springs 2012-2016

- **Instructors:** Ali Haghani, Rafael Olarte, Hakob Avetisyan

ENCE 370 Introduction to Transportation Engineering and Planning Fall 2010 & Spring 2011

- **Instructors:** Lei Zhang, Cinzia Cirillo

ENCE 472 Transportation Engineering Spring 2011

- **Instructor:** Paul Schonfeld

SERVICE AND OUTREACH – REVIEWER

International Conference on Learning Representations (ICLR)	2020
Conference on Neural Information Processing Systems (NeurIPS)	2019
Transportation Research Part E	
International Journal of Project Management	
International Journal of Geographical Information Science	

INVITED TALKS

Northrop Grumman University Research Symposium	Anaheim, CA 2019
UMD Machine Learning Seminar Series	College Park, MD 2019
STN EXPO's panelist on transportation scheduling and optimization panel	Reno, NV 2017
ASBOs 65th Annual Spring Conference	Ocean City, MD 2017

SELECTED MEDIA RECOGNITION

Bot war: Here's how you can theoretically use adversarial AI to evade YouTube's hard-line copyright-detecting AI, The Register .	2019
School Bus Route Efficiency, The Academic Minute .	2017
Yarn is for Knitting, Not for Route Planning, STN Media .	2017
Calculating better, cheaper and well-planned school bus routes, Salon , The Conversation , GCN .	2017
How to Optimize School Bus Networks, VOA .	2017
Anne Arundel board member advocates for professor's bus routing model, Capital Gazette .	2017
Efficiency Engineered Into Design of New HCPSS School, Transportation, The Business Monthly .	2017
Howard schools, University of Maryland students use mathematical software to find most efficient bus routes, The Baltimore Sun .	2017
Experts work out details of Howard County schools start times, WBAL-TV 11 .	2017
University of Maryland researchers develop algorithm for bus route efficiency, FOX 5 DC .	2017

SKILLS AND INTERESTS

Interests	Deep Learning, Adversarial Machine Learning, Machine Learning Security, Computer Vision, Machine Learning, Numerical Optimization, Natural Language Processing, Recommender Systems
Software/Packages	Network Modeling, Project Management, Operations Research Python, C++, Matlab, Tensorflow, Pytorch, CPLEX, Numpy, Scikit-learn, Mosel-Xpress, GAMS, AMPL