# Diman Zad Tootaghaj

## Contact Information
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- Current Address: 208 Haffner Hall, White Course Apartments, University Park, PA, 16802.

## Education
- **PhD, Computer Science and Engineering**
  The Pennsylvania State University, University Park, USA, since 2012, May 2018.
- **MSC, Computer Science and Engineering**
  - The Pennsylvania State University, University Park, USA, since 2012, December 2015.
- **MSC, Electrical Engineering, Communications**
  Sharif University of Technology, Tehran, Iran, graduated in 2010.
- **BSC, Electrical Engineering, Communications**
  Sharif University of Technology, Tehran, Iran, graduated in 2007.
- **High School and Diploma and Secondary school**
  Center of Exceptional Talents in Mathematics and Physics, Zanjan, Iran, June 2003.

## Computer Skills
- NETWORKING: NS, OPNET, QUALNET, OMNET, TCL.
- OPERATING SYSTEM: Linux (UBUNTU), MAC OS, Windows.
- PROGRAMMING SOFTWARE: **Windows mobile programming**, C# (5 years), C (10 years), C++ (5 years), Visual C++ (5 years), Pascal (2 years), Java (1 year), python (2years).
- ARCHITECTURE SOFTWARE: **SIMICS**, **CSIM**, **SHARPE**, **CotSon**, **AMD Simnow**, **Gem5**.
- ELECTRICAL ENGINEERING: MATLAB, Orcad, Protel, PSPICE, Quartus, MaxPlus, Microwave Office.

## Awards, Recognitions and Scholarship
- Awarded College of Engineering Fellowship, The Pennsylvania State University, University Park, PA, USA.
- Developing Simulator for routing protocols of wireless Ad-hoc Networks: GTNS: Game-Theoretic Network Simulator. Implementing some routing protocols, booked as an invention, 2010.
- Ranked Top %1 in the Nationwide University of Iran Entrance Exam for M.SC., 2008.
- Ranked Top %1 in the Nationwide University of Iran Entrance Exam for B.SC., 2003.

## Research Interests
- Computer Networks, Network Recovery after massive disruption
- Game-theoretic Approach in Routing Protocols, Multipath Routing Ad hoc/Sensor Protocols
- Approximate computing and probabilistic programming
- Operating Systems, Computer Architecture, Parallel Computing
- Scheduling algorithms for multi-core systems, Data center architecture and performance analysis.

## Publications
- Diman Zad Tootaghaj, Farshid Farhat "CAGE: A Contention-Aware Game-theoretic Model for Heterogenous Resource Assignment". in the 35th IEEE International Conference on Computer Design (ICCD) 2017.
- Diman Zad Tootaghaj, Ting He and Thomas La Porta "Parsimonious Tomography: Optimizing Cost-Identifiability Trade-off for Probing-based Network Monitoring". in the IFIP Performance, 2017.
- Diman Zad Tootaghaj, Novella Bartolini, Hana Khamfroush and Thomas La Porta "Controlling Cascading Failures in Interdependent Networks under Uncertain Knowledge of Damages". in IEEE Proceedings of the International Symposium on Reliable Distributed Systems (IEEE SRDS 2017).
- Diman Zad Tootaghaj, Hana Khamfroush, Novella Bartolini, Stefano Ciavarella, Seamus Hayes and Thomas La Porta "Network Recovery from Massive Failures under Uncertain Knowledge of Damages", in Proceedings of the IFIP Networking Conference (IFIP NETWORKING 2017).
- F. Farhat, D. Z. Tootaghaj, Yuxiong He, A. Sivasubramaniam, M. T. Kandemir, C. R. Das, Stochastic Modeling and Optimization of Straggling Mappers, IEEE Transactions on Cloud Computing, 2016.
- D. Z. Tootaghaj, F. Farhat, M. Arjomand, P. Faraboschi, M. T. Kandemir, A. Sivasubramaniam, C. R. Das, "Evaluating the Combined Impact of Datacenter Architecture and Cloud Workload Characteristics on Performance, Network Traffic and Cost," IEEE International Symposium on Workload Characterization (IISWC) 2015.
- F. Farhat, D. Z. Tootaghaj, A. Sivasubramaniam, M. T. Kandemir, C. R. Das, Modeling and Optimization of Straggling Mappers.Technical Report CSE-14-006, Pennsylvania State University.

- D. Z. Tootaghaj, F. Farhat, M. R. Pakravan, M. R. Aref, "Risk of Attack Coefficient Effect on Availability of Ad-hoc Networks," IEEE Consumer Communications and Networking Conference RSW, 2011.
- D. Z. Tootaghaj, F. Farhat, M. R. Pakravan, M. R. Aref, "Game-Theoretic Approach to Mitigate Packet Dropping in Wireless Ad-hoc Networks," IEEE CCNS RSW, 2011.
- M. A. Kashiha, D. Z. Tootaghaj, "Partial Discharge Source Classification and De-Noising in Rotating Machines using Discrete Wavelet Transform and Directional Coupling Capacitors", IEEE Transmission and Distribution Conference and Exposition: Asia and Pacific, 2009.

## Submissions
- D. Z. Tootaghaj, A. Sampson, T. Mytkowicz, K. S. McKinley, High Five: Gesture recognition by embracing the uncertainty. IUI 2016.
- F. Farhat, D. Z. Tootaghaj, M. Arjomand. Towards Optimizing Data Computing Flow in the Cloud.

## Work Experiences
- **Microsoft Research Internship**: Working on **Uncertain<T>** probabilistic programming language for gesture recognition in Windows Mobile applications, 2015.
- Iran Telecommunication Research Center (ITRC), Tehran, Iran, working as a researcher, Information and Communication Technology Department (ICT), 2010-2011.
- Information Systems and Security Lab (ISSL), Electrical Engineering Department, Sharif University of Technology, 2011.
- Niroo Research Institute, Tehran, Iran: working as a researcher in communication department, Network Control and Management Faculty, 2007-2008.
- Optical Network Lab, Electrical Engineering Department, Sharif University of Technology, 2006-2007.

## Teaching Experience
- **Instructor**: CMPSC 473, Operating Systems, Pennsylvania State University, University Park, Fall 2015.
- TA, Operating Systems: Department of Computer Sciences and Engineering, Spring 2013, Spring 2014, Spring 2015.

## Selected Courses
- Advanced Communication Networks, Dr. Pakravan, Department of Electrical Engineering, Spring 2010.
- Numerical Optimization, Dr. Babaeezadeh, Department of Electrical Engineering, Fall 2009.
- Game Theory, Dr. Fatemi, Graduate School of Management and Economics, as volunteer, Fall 2009.
- Computer Architecture, Prof. Narayanan, Department of Computer Science and Engineering, Spring 2012.
- Advanced Operating System Design, Prof. Sivasubramaniam, Department of Computer Science and Engineering, Fall 2013.
- Advanced Cryptography, Dr. Salmasizadeh, Department of Electrical Engineering, Spring 2010.

## Research Experiences and Projects
- *Performance evaluation of Mini applications on **Intel Xeon Phi Coprocessors, multi-core programming**, Spring 2014.*
- ***Parallel file server**, advanced operating systems design, Prof. Sivasubramaniam, Fall 2013.*
- *Designing **user-level pthread library**, Operating system design, Prof. Urgaonkar, Spring 2012.*
- *M.Sc. Thesis:* Analysis of Routing Misbehavior in Ad Hoc Networks, Under Supervision of Prof. M. R. Aref, 2010.
- *B.Sc. Thesis:* Analysis of Dynamic Bandwidth Allocation algorithms in Fiber to the Home, Under Supervision of Prof. J. A. Salehi, 2004-2005.
- Designing Game-Theoretic Network Simulator ([GTNS](#)), Since 2009.
- Design and manufacturing an advanced PDA (Partial Discharge Analyzer) for verifying insulation of high voltage motors and generators, National Project in Power Ministry, NRI (Niroo Research Institute), 2007-2008.

## References
- Prof. Thomas La Porta, Advisor, Pennsylvania State University.
- Dr. Novella Bartolini, Computer Science Department of Sapienza University of Rome.
- Dr. Ting He, Pennsylvania State University.
- Prof. Kathryn S. McKinley, Manager, Google Research, Mountain View.
- Dr. Todd Mytkowicz , Mentor, Microsoft Research, Redmond.
- Prof. Mohammad Reza Aref, Supervisor.
- Associate Prof. Mohammad Reza Pakravan, Co-Advisor.

## Languages
- Kurdish (Native Language)
- Persian (National Language)
- Turkish (basic)
- Arabic (basic)
- English