Duong T. A. Nguyen (Ella)

School of Electrical, Computer and Energy Engineering
Arizona State University
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Research Interest

My research interests lie in the intersection of operations research, distributed optimization, game theory and engineering. The research focuses on developing distributed algorithms, mathematical models for decision-making under uncertainty, fair and privacy-preserving mechanism designs and economic analysis of large-scale network in multi- agent systems. Research applications include cloud/edge computing, electric vehicles, communication networks, non-cooperative games over time-varying directed communication networks, etc.

Education

Ph.D. student ***(GPA: 4.0/4.0)*** **December 2020 - present**
School of Electrical, Computer and Energy Engineering, Arizona State University

M.S. in Applied Mathematics ***(GPA: 4.0/4.0)*** **December 2019**
University of Louisiana at Lafayette

B.S. in Mathematics ***(GPA: 3.89/4.0)*** **June 2017**
Dalat University, Dalat, Vietnam

Research Experience

Research Assistant **December 2020 - present**
School of Electrical, Computer and Energy Engineering, Arizona State University
Advisor: Prof. Duong Tung Nguyen

Research Assistant **January 2019 - December 2020**
Department of Mathematics, University of Louisiana at Lafayette
Advisor: Prof. Longfei Li

Undergraduate Research

Duong T. A. Nguyen, Dang Phuoc Huy, **Multiple linear regression analysis and an application**, Undergraduate Thesis, Faculty of Mathematics and Informatics, Dalat University, Vietnam, 2017.

Duong T. A. Nguyen, Dang Tuan Hiep, **Functional equations**, Scientific Research Competition for College Students, Dalat University, Vietnam, 2015.

Teaching Experience

Teaching Assistant **August 2022 - December 2022**
Arizona State University

Fall 2022: CSE 539 Applied Cryptography (TA)

Teaching Assistant **August 2017 - December 2018**
Department of Mathematics, University of Louisiana at Lafayette

Fall 2018: MATH 103/104 College Algebra (Instructor)

Spring 2018: STAT 214 Elementary Statistics (TA)

Fall 2017: STAT 214 Elementary Statistics (TA)

Tutoring at Math Lab **August 2017 - May 2018**
Department of Mathematics, University of Louisiana at Lafayette

Computer Skills

MATLAB (CVX, Gurobi, Mosek), LaTex, Julia, Python, SQL, R, SAS.

Publications

Duong T. A. Nguyen, Jiaming Cheng, Ni Trieu, Duong Tung Nguyen, **A Fairness-Aware Attacker-Defender Model for Optimal Edge Network Operation and Protection** (Submitted to IEEE Networking Letter)

Angelia Nedić, Duong T. A. Nguyen, Duong Tung Nguyen, AB**/Push-Pull Method for Distributed Optimization in Time-Varying Directed Networks** (Submitted to Optimization Methods and Software)

Duong T. A. Nguyen, Duong Tung Nguyen, Angelia Nedić, **Distributed Nash Equilibrium Seeking over Time-Varying Directed Communication Networks**. (Submitted to IEEE Transactions on Automatic Control)

Duong T. A. Nguyen, Longfei Li, Hangjie Ji, **Stable and accurate algorithms for generalized Kirchhoff-Love plates**, Journal of Engineering Mathematics, October 2021.

Papers in preparation

Duong T. A. Nguyen, Jiaming Cheng, Lele Wang, Duong Tung Nguyen, Vijay K. Bhargava, **Dynamic Online Pricing for Heterogeneous Edge Resource Allocation: A Bandit Learning Approach**

Duong T. A. Nguyen, Tarannum Nisha, Duong Tung Nguyen, Vijay K. Bhargava, **A Bi-level Mixed-integer Model for Service Placement and Pricing in Edge Computing**

Jiaming Cheng, Duong T. A. Nguyen, Duong Tung Nguyen, Vijay K. Bhargava, **Delay-Aware Robust Edge Network Hardening Under Decision-Dependent Uncertainty**

Duong T. A. Nguyen, Duong Tung Nguyen, **Resilient Edge Network Planning with Proactive Uncertainty Reduction**

Duong T. A. Nguyen, Duong Tung Nguyen, **A Market-Based Mechanism for Joint Resource Provisioning and Allocation in Edge Computing**

Presentations

International Conference on Continuous Optimization, **Distributed Nash Equilibrium Seeking over Time-Varying Directed Communication Networks**, Bethlehem, PA, July 2022.

2021 INFORMS Annual Meeting, **Market-based Mechanisms For Fair And Efficient Resource Allocation In Edge Computing**, Anaheim, CA, October 2021.

LA/MS Sectional Meeting of the Mathematical Association of America, **A comparative study of physics-informed deep learning models for discovering partial differential equations**, Loyola University, New Orleans, LA, February 2020.

Annual Graduate Student Symposium, **Stable and accurate algorithms for generalized Kirchhoff-Love plates**, University of Louisiana at Lafayette, Lafayette, LA, November 2019.

AMS Sectional Meeting, **Stable and accurate algorithms for generalized Kirchhoff-Love plates**, University of California, Riverside, Riverside, CA, November 2019.

MATH 495 - Advanced Mathematics for Engineers and Scientists (Invited talk), **Numerical methods for PDEs and an application in solving Kirchhoff-Love plate models**, University of Louisiana at Lafayette, Lafayette, LA, November 2019.

Applied Mathematics Seminar, **A stable and accurate algorithm for a generalized Kirchhoff-Love plate model**, University of Louisiana at Lafayette, Lafayette, LA, October 2019.

Posters

45th Annual New York State Regional Graduate Mathematics Conference, **Stable and accurate algorithms for generalized Kirchhoff-Love plates**, Syracuse University, Syracuse, NY, March 2020 (remote due to COVID-19).

SIAM Texas–Louisiana Annual Meeting, **A stable and accurate algorithm for a generalized Kirchhoff-Love plate model**, Southern Methodist University, Dallas, TX, November 2019.

Conferences and Workshops

Foundations and Frontiers of Probabilistic Proofs, ETH, Zurich, Switzerland, July 26, 2021 to August 06, 2021. (remote due to COVID-19)

Scientific Computing Around Louisiana (SCALA), Louisiana State University, Baton Rouge, LA, February 2020.

UCR Math Workshop for Excellence and Diversity, University of California, Riverside, Riverside, CA, November 2019.

Lloyd Roeling UL Lafayette Mathematics Conference, University of Louisiana at Lafayette, Lafayette, LA, October 2019.

AWM Research Symposium, Rice University, Houston, TX, April 2019.

Louisiana Chapter of the ASA - Fall 2018 Meeting, Louisiana State University, Baton Rouge, LA, November 2018.

VIASM Mathematics Summer School, Quy Nhon University, Quy Nhon, Vietnam, July 2015.

Honors and Awards

Outstanding Research Award, Arizona State University, Spring 2022.

Engineering Graduate Fellowship, Ira A. Fulton Schools of Engineering, Arizona State University, Spring 2021.

Travel Award, Annual New York State Regional Graduate Mathematics Conference, Syracuse University, NY, February 2020.

Finalists of the Three Minutes Thesis Competition, University of Louisiana at Lafayette, Lafayette, LA, November 2019.

Best Posters Award, SIAM Texas–Louisiana Annual Meeting, Southern Methodist University, Dallas, TX, November 2019.

SIAM TX-LA Travel Award, Southern Methodist University, Dallas, TX, November 2019.

Academic Excellence (GPA: $4.0/4.0$), University of Louisiana at Lafayette, 2019, 2020.

Outstanding Graduate Award (GPA: $3.89/4.0$), Dalat University, Vietnam, June 2017.

Scholarship of the Key National Program "Development in Mathematics", Vietnam Institute for Advanced Study in Mathematics, Vietnam, 2015, 2016, 2017.

Outstanding Young Faces Award, Dalat University, Vietnam, October 2013.

Highest score in the entrance exam to Dalat University, Vietnam, August 2013.

Consolation prize in Mathematics in the Competition for Excellent Students, National Level, Ministry of Education and Training, Vietnam, March 2013.

Second prize in Mathematics Competition for Excellent Students: "Solving problems with portable calculators", Province Level, Lam Dong, Vietnam, 2013.

Second prize in Mathematics Competition for Excellent Students, Province Level, Lam Dong, Vietnam, 2013.

Odon Vallet Scholarship Award, Lam Dong, Vietnam, 2012.

Professional Associations

Association for Women in Mathematics (AWM)

Society for Industrial and Applied Mathematics (SIAM)

American Mathematical Society (AMS)