Dengwang Tang

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dwtang@umich.edu   (734)395-7009

EDUCATION

Ph.D. Electrical and Computer Engineering
GPA: 4.00
University of Michigan, Ann Arbor, MI,
Defense completion: September 2021
Degree conferral: December 2021

M.S., Mathematics
GPA: 4.00
University of Michigan, Ann Arbor, MI, April 2021

M.S., Electrical and Computer Engineering, Communications
GPA: 4.00
University of Michigan, Ann Arbor, MI, December 2018

B.S.E., Electrical and Computer Engineering
GPA: 3.81
University of Michigan – Shanghai Jiao Tong University Joint Institute
Shanghai Jiao Tong University, Shanghai, China, July 2016

B.S.E., Computer Engineering, *summa cum laude*
GPA: 3.93
University of Michigan, Ann Arbor, MI, April 2016
Minor: Mathematics

RESEARCH EXPERIENCE

Postdoctoral Researcher
October 2022 – Present
University of Southern California, Los Angeles, CA
Advisors: Rahul Jain, Ashutosh Nayyar, and Pierluigi Nuzzo

- Designed practical algorithms for solving multi-agent partially observable Markov decision processes (MA-POMDP)

- Investigated theoretical guarantees of Thompson sampling algorithm in Markov Decision Processes (MDP)

Postdoctoral Researcher
October 2021 – September 2022
University of California, Berkeley, CA
Advisor: Venkatachalam Anantharam

- Investigated and proved a group of properties related to the decomposition of correlated equilibria

Graduate Student
Fall 2016 – Summer 2021
ECE Department, University of Michigan, Ann Arbor, MI
Advisor: Vijay Subramanian

- Developed notions of information states in general dynamic games

- Proposed and investigated a dynamic information design problem

- Investigated information compression schemes in a family of dynamic games among teams

- Designed and analyzed a family of new load balancing schemes based on random walks on graphs

- Theoretically analyzed Scarf's algorithm for stable matching problems with couples

- Implemented Scarf's algorithm in Matlab and Python and investigated its performance through numerical simulations

- Developed a new approach to analyze the Markov chain associated with LRU (least recently used) caching algorithm

- Designed and analyzed a new family of priced mechanisms for combinatorial auctions with complementarities

Undergraduate Research Assistant   Summer 2014
ECE Department, University of Michigan, Ann Arbor, MI
- Developed a new priced mechanism for spectrum allocation

- Analyzed the property of the mechanism

- Implemented the mechanism in Python

TEACHING   *Graduate Student Instructor*
EXPERIENCE ECE Department, University of Michigan, Ann Arbor, MI
EECS301: Probabilistic Methods in Engineering   Winter 2020
EECS501: Probability and Random Process   Winter 2018, Fall 2018
- Graded exams

- Held discussion sessions

- Provided help for students during office hour

Teaching Assistant   Summer 2013
UM-SJTU Joint Institute, Shanghai Jiao Tong University, Shanghai, China
VV285: Honors Calculus III
- Graded homework and exams

- Held review sessions

- Provided help for students during office hours

WORKING   *Software Engineering Intern*   May 2019 – August 2019
EXPERIENCE Google LLC., San Francisco, CA

- Analyzed process execution log data

- Trained a recurrent neural network to perform anomaly detection on process execution logs

- Implemented the local outlier factor method to perform anomaly detection on process execution logs

PAPERS

Journal Publications

1. **D. Tang**, H. Tavafoghi, V. G. Subramanian, A. Nayyar, D. Teneketzis, "Dynamic Games among Teams with Delayed Intra-Team Information Sharing," Dynamic Games and Applications (2022)

2. **D. Tang**, V. G. Subramanian, "Random Walk Based Sampling for Load Balancing in Multi-server Systems," Proceedings of the ACM on Measurement and Analysis of Computing Systems (2019), Vol. 3(1), p. 14

3. **D. Tang**, V. G. Subramanian, "Eigenvalues of LRU via a Linear Algebraic Approach," Operation Research Letters (2018), Vol. 46(2), p.193-198

Preprints

1. **D. Tang**, V. G. Subramanian, "Derandomized Load Balancing using Random Walks on Expander Graphs," *arXiv preprint arXiv:1901.09094* (2019)

2. **D. Tang**, V. G. Subramanian, "Approximately Envy-Free Spectrum Allocation with Complementarities," *arXiv preprint arXiv:1606.01457* (2016)

Conference Papers

1. **D. Tang**, H. Tavafoghi, V. G. Subramanian, A. Nayyar, D. Teneketzis, "Private Information Compression in Dynamic Games among Teams," accepted to the 2021 IEEE Conference on Decision and Control (CDC), (2021)

2. **D. Tang**, V. G. Subramanian, "Derandomized Asymmetrical Balanced Allocation," 57th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL, USA, (2019)

3. **D. Tang**, V. G. Subramanian, "Balanced Allocation on Graphs with Random Walk Based Sampling," 56th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL, USA, (2018) pp. 765-766.

PRESENTA-TIONS

1. **D. Tang**, H. Tavafoghi, V. G. Subramanian, A. Nayyar, D. Teneketzis, "Dynamic Games among Teams with Asymmetric Information," presentation in Centre for Intelligent Machines (CIM) and Groupe d'Etudes et de Recherche en Analyse des Decisions (GERAD) Virtual Informal Systems Seminar, Montréal, QC, Canada (2021)

2. **D. Tang**, V. G. Subramanian, "Derandomized Asymmetrical Balanced Allocation," presentation in 57th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL (2019)

3. **D. Tang**, V. G. Subramanian, "Balanced Allocation with Random Walk Based Sampling," presentation in Stanford CS Theory Lunch, Stanford, CA (2019)

4. **D. Tang**, V. G. Subramanian, "Random Walk Based Sampling for Load Balancing in Multi-Server Systems," presentation in ACM SIGMETRICS 19', Phoenix, AZ (2019)

5. **D. Tang**, V. G. Subramanian, "Balanced Allocation on Graphs with Random Walk Based Sampling," presentation in 56th Annual Allerton Conference on Communication, Control, and Computing, Monticello, IL (2018)

6. **D. Tang**, V. G. Subramanian, "Combinatorial Auctions with Complementarities," poster presentation in 7-th Midwest Control and Game Theory Workshop, East Lansing, MI (2018)

7. **D. Tang**, T. Nguyen, V. G. Subramanian, R. Vohra, "Computational Testing of Scarf Algorithm for Near Feasible Stable Matching with Couples," poster presentation in 6-th Midwest Control and Game Theory Workshop, Ann Arbor, MI (2017)

SERVICE	*Reviewer* Systems & Control Letters (SCL)	2022

Reviewer   2022
SIAM Journal on Control and Optimization (SICON)

Reviewer   2022
IEEE Transactions on Automatic Control (IEEE-TAC)

Reviewer   2021
IEEE Control Systems Letters (L-CSS) / IEEE Conference on Decision and Control (CDC)

Reviewer   2020
IEEE Control Systems Letters (L-CSS) / American Control Conference (ACC)

RELEVANT COURSEWORK

University of Michigan, Ann Arbor, MI
- ECON617 Game Theory
- EECS501 Probability and Random Process
- EECS502 Stochastic Processes
- EECS550 Information Theory
- EECS554 Digital Communication and Codes
- EECS557 Communication Networks
- EECS558 Stochastic Control
- EECS560 Linear Systems Theory
- EECS564 Estimation, Detection, Filtering
- EECS598 Special Topics: Mining Large-Scale Graph Data
- EECS598 Special Topics: Reinforcement Learning
- MATH562 Continuous Optimization Methods
- MATH596 Complex Analysis
- MATH597 Real Analysis
- MATH602 Functional Analysis
- MATH625 Probability and Random Process I
- MATH709 Brownian Motion

- MATH710 Measure Concentration

SKILLS
- Programming Skills: Matlab, C, C++, Python, Julia

REFERENCE Prof. Vijay Subramanian, University of Michigan, ECE Department, 1301 Beal Avenue, Ann Arbor, MI, 48109-2122, USA.
Phone: (734) 615-1915
Mail: vgsubram@umich.edu

Prof. Demosthenis Teneketzis, University of Michigan, ECE Department, 1301 Beal Avenue, Ann Arbor, MI, 48109-2122, USA.
Phone: (734) 763-0598
Mail: teneket@umich.edu