

Vasileios Tzoumas

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ACADEMIC EMPLOYMENT

- Massachusetts Institute of Technology** July 2018 - present
Post-doctoral Associate
Laboratory for Information & Decision Systems (LIDS)
Department of Aerospace and Aeronautics (AeroAstro)
Host: Prof. Luca Carlone
- Massachusetts Institute of Technology** July 2017 - December 2017
Visiting Ph.D. student
Institute for Data, Systems, and Society (IDSS)
Host: Prof. Ali Jadbabaie

EDUCATION

- University of Pennsylvania** April 2018
Ph.D. in Electrical and Systems Engineering, GPA: 3.91/4.0
Mentors: Prof. George J. Pappas (UPenn); Prof. Ali Jadbabaie (MIT)
Thesis title: "Resilient Submodular Maximization for Control and Sensing"
- University of Pennsylvania** December 2016
Master of Science in Electrical Engineering, GPA: 4.00/4.0
- Wharton School of Business - University of Pennsylvania** December 2016
Master of Arts in Statistics, GPA: 3.94/4.0
- National Technical University of Athens** June 2011
Diploma in Electrical and Computer Engineering, GPA: 9.54/10.00

AWARDS & DISTINCTIONS

- Best Student Paper Award Finalist** (4 finalists, out of 1100 accepted papers), IEEE Conference on Decision and Control (**CDC**), *2017*.
- Best Presentation in Session Award, American Control Conference (**ACC**), *2015, 2016*.
- ECE Distinguished Research Fellowship, University of Illinois at Urbana-Champaign (**UIUC**), *2012; declined*.
- Jacobs Fellowship, University of California at San Diego (UCSD), *2012; declined*.
- Graduate Fellowship, University of Pennsylvania, *2012-2018*.
- Highest honors, National Technical University of Athens (NTUA), *2011*.
- Greek Scholarships Foundation Award, National Technical University of Athens (NTUA), *2008*.
- Papakyriakopoulos Award for excellence in Mathematics, School of Electrical and Computer Engineering, National Technical University of Athens (NTUA), *2006*.
- Education Award from Eurobank EFG Group, for ranking 1st among the students of the 1st Experimental Unified Lyceum of Athens at the Pan-Hellenic university admission examinations, *2005*.

JOURNAL SUBMISSIONS

2. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Resilient Non-Submodular Maximization over Matroid Constraints,” (*under review*), 2018.
arXiv preprint:1804.01013.
1. **V. Tzoumas**, L. Carlone, G. J. Pappas, A. Jadbabaie, “LQG Control and Sensing Co-Design,” (*under review*), 2018.
arXiv preprint:1802.08376.

JOURNAL PUBLICATIONS

4. L. Zhou, **V. Tzoumas**, G. J. Pappas, P. Tokekar, “Resilient Active Target Tracking with Multiple Robots,” in *IEEE Robotics & Automation Letters (RAL)*, Vol. 4, No. 1, 2019.
arXiv preprint:1809.04032.
DOI: 10.1109/LRA.2018.2881296.
3. A. Jadbabaie, A. Olshevsky, G. J. Pappas, **V. Tzoumas**, “Minimal Reachability is Hard to Approximate,” in *IEEE Transactions on Automatic Control (TAC)*, in press, 2018.
arXiv preprint:1710.10244.
2. **V. Tzoumas**, Y. Xue, S. Pequito, P. Bogdan, G. J. Pappas, “Selecting Sensors in Biological Fractional-Order Systems,” *IEEE Transactions on Control of Network Systems (TCNS)*, Vol. 5, No. 2, 2018.
DOI: 10.1109/TCNS.2018.2809959.
1. **V. Tzoumas**, M. A. Rahimian, G. J. Pappas, A. Jadbabaie, “Minimal Actuator Placement with Bounds on Control Effort,” *IEEE Transactions on Control of Network Systems (TCNS)*, Vol. 3, No. 1, 2016.
arXiv preprint:1409.3289.

CONFERENCE SUBMISSIONS

1. **V. Tzoumas**, P. Antonante, L. Carlone, “Outlier-Robust Spatial Perception: Hardness, General-Purpose Algorithms, and Guarantees,” (*under review*), 2019.

CONFERENCE PUBLICATIONS

10. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Resilient Monotone Sequential Maximization,” 57th IEEE Conference on Decision and Control (CDC), December 2018, **invited paper**.
arXiv preprint:1803.07954.
9. B. Schlotfeldt, **V. Tzoumas**, D. Thakur, G. J. Pappas, “Resilient Active Information Gathering with Mobile Robots,” IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), October 2018.
arXiv preprint:1803.09730.
8. **V. Tzoumas**, L. Carlone, G. J. Pappas, A. Jadbabaie, “Sensing-Constrained LQG Control,” American Control Conference (ACC), 2018, **invited paper**.
arXiv preprint:1709.08826.
7. **V. Tzoumas**, K. Gatsis, A. Jadbabaie, G. J. Pappas, “Resilient Monotone Submodular Function Maximization,” 56th IEEE Conference on Decision and Control (CDC), 2017, **invited paper**.
arXiv preprint:1703.07280.
Best Student Paper Award Finalist.
6. **V. Tzoumas**, N. A. Atanasov, A. Jadbabaie, G. J. Pappas, “Scheduling Nonlinear Sensors for Stochastic Process Estimation,” American Control Conference (ACC), 2017.
arXiv preprint:1609.08536.

5. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Near-Optimal Sensor Scheduling for Batch State Estimation: Complexity, Algorithms, and Limits,” 55th IEEE Conference on Decision and Control (CDC), 2016, **invited paper**.
arXiv preprint:1608.07533.
4. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Sensor Placement for Optimal Kalman Filtering: Fundamental Limits, Submodularity, and Algorithms,” American Control Conference (ACC), 2016, **invited paper, best presentation in session**.
arXiv preprint:1509.08146.
3. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Minimal Reachability Problems,” 54th IEEE Conference on Decision and Control (CDC), 2015.
arXiv preprint:1503.07021.
2. **V. Tzoumas**, M. A. Rahimian, G. J. Pappas, A. Jadbabaie, “Minimal Actuator Placement with Optimal Control Constraints,” American Control Conference (ACC), 2015, **best presentation in session**.
arXiv preprint:1503.04693.
1. **V. Tzoumas**, C. Amanatidis, E. Markakis, “A Game-Theoretic Analysis of a Competitive Diffusion Process over Social Networks,” 8th Conference on Web and Internet Economics (WINE), 2012.
DOI: 10.1007/978-3-642-35311-6_1.
Acceptance rate 25%.

THESES

1. **V. Tzoumas**, *Resilient Submodular Maximization for Control and Sensing*, Ph.D. Thesis, University of Pennsylvania, 2018.
Mentors: Prof. Ali Jadbabaie (MIT); Prof. George J. Pappas (UPenn).
2. **V. Tzoumas**, *A Game-Theoretic Analysis of a Competitive Diffusion Process over Social Networks*, Diploma Thesis, National Technical University of Athens, 2011.
Mentors: Prof. E. Markakis (AUEB); Prof. T. Koussiouris (NTUA).

INVITED TALKS

1. *LIDS Student Conference, MIT*, 2018.
2. *Institute of Informatics & Telecommunications (IIT) Seminar, Demokritos*, 2018.
3. *IEEE Conference on Decision and Control (CDC)*, 2016, 2017, 2018.
4. *American Control Conference (ACC)*, 2016.

MENTORSHIP EXPERIENCE

PhD students:

- Pasquale Antonante, Massachusetts Institute of Technology, 2018-ongoing;
- Brent Schlotfeldt, University of Pennsylvania, 2018-ongoing;
- Lifeng Zhou, Virginia Tech, 2018-ongoing.

LIDS mentoring committee at MIT:

- Organized 1.5 hours LIDS event on academic faculty applications. Event involved an academic panel composed of 5 professors: 1 current LIDS PI, and 4 LIDS or CSAIL alumni, currently professors at Harvard, Tufts, Boston and Northeastern University, respectively.

LIDS post-doc committee at MIT:

- Co-founder of the committee;

- Organized 1 hour LIDS post-doc event on academic faculty applications. Event involved a panel composed of 4 LIDS post-docs applying at the moment for academic faculty positions.
- Organized a series of 1 hour LIDS events for the LIDS post-docs with academic faculty interviews to practice their job-talks.

TEACHING EXPERIENCE

Linear Optimization (UPenn ESE 504), Teaching Assistant	Fall 2013
Linear Systems (UPenn ESE 500), Teaching Assistant	Fall 2014

PROFESSIONAL ACTIVITIES AND SERVICES

- Invited session chair, American Control Conference (ACC), 2018.
- Invited session organizer (with Tyler H. Summers), 55th IEEE Conference in Decision and Control (CDC), 2016.
- Reviewer for the *journals*: IEEE Transactions on Automatic Control (TAC), on Robotics (TRO), on Control of Network Systems (TCNS), on Network Science and Engineering (TNSE), and on Signal Processing (SP); Automatica; Autonomous Robots (AURO); International Journal of Robotics Research (IJRR); IEEE Sensors; IEEE Signal Processing Letters (SPL); Physics Letters; Scientific Reports; Nature.
- Reviewer for the *conferences*: IEEE Conference on Decision and Control (CDC), on Cyber-Physical Systems (ICCPS), on Control Technology and Applications (CCTA), and on Robotics and Automation (ICRA); American Control Conference (ACC); European Control Conference (ECC); Conference on Web and Network Economics (WINE), on Economics and Computation (EC), and on World Wide Web (WWW).