

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**, 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)*, in press, 2019.
arXiv preprint:1809.04032.
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 PUBLICATIONS

10. **V. Tzoumas**, A. Jadbabaie, G. J. Pappas, “Resilient Monotone Sequential Maximization,” 57th IEEE Conference on Decision and Control (CDC), *to appear*, 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), *to appear*, 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.

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:

- 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.

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:
 - (*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; IEEE Sensors; Autonomous Robots (AURO); IEEE Signal Processing Letters (SPL); Physics Letters; Scientific Reports; Nature.
 - (*Conferences*) IEEE Conference on Decision and Control (CDC), on Cyber-Physical Systems (ICCPS), and on Robotics and Automation (ICRA); American Control Conference (ACC); Conference on Web and Network Economics (WINE), on Economics and Computation (EC), and on World Wide Web (WWW).