

Ioannis Panageas

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POSITIONS	Singapore University of Technology and Design , Singapore Fall 2018 - Present Assistant Professor, Information Systems Technology and Design Pillar Massachusetts Institute of Technology , Cambridge, MA, USA Fall 2017 - Fall 2018 Postdoctoral researcher Mentor: Constantinos Daskalakis Singapore University of Technology and Design , Singapore Fall 2016 - Summer 2017 Postdoctoral researcher	
EDUCATION	Georgia Institute of Technology , Atlanta, GA, USA August 2011 - 5th August 2016 PhD in Algorithms Combinatorics and Optimization (ACO) Dissertation Title: Evolutionary Markov Chains, Potential Games and Optimization Under the Lens of Dynamical Systems. Advisor: Prasad Tetali Master of Sciences in Mathematics University of Athens , Athens, Greece Fall 2010 - Fall 2011 Master of Sciences in Logic, Algorithms & Computation National Technical University of Athens , Athens, Greece October 2005 - November 2010 Diploma, Electrical and Computer Engineering GPA: 9.54/10 (Top 1%) (<i>with highest honors</i>) <ul style="list-style-type: none">• Major: Computer Science, Minor: Mathematics, Networks	
RESEARCH INTERESTS	Theory of computation and its interface with optimization, dynamical systems, probability and statistics, machine learning and their applications to game theory, evolution and dynamics on networks.	
GRANTS	SRG, 100,000SGD NRF fellowship for AI, 3,000,000SGD NRF-ANR Grant 500.000SGD (co-PI)	

ACADEMIC SERVICE	<p>Committee Member for EC 2020, AAAI 2020, NeurIPS 2019, ICML 2019, EC 2019, WINE 2019.</p> <p>(Sub)reviewer for</p> <p>Conferences: COLT, AAAI, IJCAI, FSTTCS, ISIT, WINE, ICALP, SODA, FOCS, STOC.</p> <p>Journals: Games and Economic Behavior, IEEE Transactions on Information Theory.</p>
HONORS AND AWARDS	<ul style="list-style-type: none"> • NRF fellowship for AI. • MIT-SUTD Postdoc Fellowship. • ARC fellowship Fall 2014. • ARC fellowship Spring 2013. • Onassis fellowship Fall 2011. • My team (3 members) ranked 18th, 17th (top 25) in IEEE xtreme programming contest among 1000/700 teams, 2009/2010. • Third Prize in IMC, 2008. • Silver Medal in SEEMOUS 2007. • Papakyriakopoulos Award for excellence in Mathematics (GPA 10/10) 2005-07. • Bronze medal in Balkan Olympiad in Informatics 2005. • Member of the National Mathematical Team, 2001, 2004, 2005. • Member of the National Team in Informatics, 2004, 2005.
PUBLICATIONS	<ol style="list-style-type: none"> 1. <i>First-order methods Almost Always Avoid Saddle Points: The case of Vanishing Step-sizes.</i> with Xiao Wang and Georgios Piliouras. Conference on Neural Information Processing Systems (NIPS) 2019. 2. <i>Multiplicative Weights Updates as a distributed constrained optimization algorithm: Convergence to second-order stationary points almost always.</i> with Georgios Piliouras and Xiao Wang. International Conference on Machine Learning (ICML) 2019. 3. <i>Regression from Dependent Observations.</i> with Constantinos Daskalakis and Nishanth Dikkala. 51st ACM Symposium on Theory of Computing (STOC) 2019. 4. <i>First-order Methods Almost Surely Avoid Saddle-points.</i> with Jason D. Lee, Georgios Piliouras, Max Simchowitz, Michael I. Jordan and Benjamin Recht. Math. Programming 2019, special issue. 5. <i>Last-Iterate Convergence: Zero-Sum Games, Constrained Min-Max Optimization.</i> with Constantinos Daskalakis. In the 10th Innovations in Theoretical Computer Science (ITCS) 2019. 6. <i>The Limit Points of (Optimistic) Gradient Descent in Min-Max Optimization.</i> with Constantinos Daskalakis. Conference on Neural Information Processing Systems (NIPS) 2018. 7. <i>Rock-Paper-Scissors, Differential Games and Biological Diversity.</i> with Tung Mai, Will Ratcliff, Vijay V. Vazirani and Peter Yunker. In Conference on Economics and Computation (EC) 2018. 8. <i>Multiplicative Weights Update with Constant Step-Size in Congestion Games: Convergence, Limit Cycles and Chaos.</i> with Gerasimos Palaiopoulos and Georgios Piliouras. Conference on Neural Information Processing Systems (NIPS) 2017, spotlight.

9. *Opinion Dynamics in Networks: Convergence, Stability and Lack of Explosion.*
with Tung Mai and Vijay V. Vazirani.
In International Colloquium on Automata, Languages
and Programming (**ICALP**) 2017.
10. *Gradient Descent Converges to Minimizers: Non-Isolated
Critical Points and Invariant Regions.*
with Georgios Piliouras.
In Innovations in Theoretical Computer Science (**ITCS**) 2017.
11. *Mutation, Sexual Reproduction and Survival in Dynamic Environments.*
with Ruta Mehta, Georgios Piliouras, Prasad Tetali and Vijay Vazirani.
In Innovations in Theoretical Computer Science (**ITCS**) 2017.
12. *The Computational Complexity of Genetic Diversity.*
with Ruta Mehta, Georgios Piliouras and Sadra Yazdanbod.
In European Symposia on Algorithms (**ESA**) 2016.
13. *Average Case Performance of Replicator Dynamics in Potential
Games via Computing Regions of Attraction.*
with Georgios Piliouras.
In Conference on Economics and Computation (**EC**) 2016.
14. *Mixing time of markov chains, dynamical systems and evolution.*
with Nisheeth K. Vishnoi.
In International Colloquium on Automata, Languages
and Programming (**ICALP**) 2016
15. *Evolutionary Dynamics in finite populations mix rapidly.*
with Piyush Srivastava and Nisheeth K. Vishnoi.
In Symposium on Discrete Algorithms (**SODA**) 2016.
16. *Natural Selection as an Inhibitor of Genetic Diversity: Multiplicative
Weights Updates Algorithm and a Conjecture of Haploid Genetics.*
with Ruta Mehta and Georgios Piliouras.
In Innovations in Theoretical Computer Science (**ITCS**) 2015.
17. *Support-theoretic subgraph preconditioners for large-scale SLAM.*
with Yong-Dian Jian, Doru Balcan, Prasad Tetali and Frank Dalleart.
In International Conference on Intelligent Robots and Systems (**IROS**) 2013.