

# ANGELO FANELLI

Research Fellow

Division of Mathematics, School of Physical and Mathematical Sciences  
21 Nanyang Link, Nanyang Technological University, Singapore 637371.  
Mobile: +(65) 98924908, Email: angelo.fanelli@ntu.edu.sg  
<http://www.angelifanelli.it>

## Personal Data

First Name Angelo  
Last Name Fanelli  
Date of birth Oct. 15th, 1979  
Nationality Italy

## Education

2005–2009 **Ph.D. in Computer Science**, Dept. of Computer Science, University of L'Aquila, L'Aquila, Italy.

- THESIS: *On Approximate Solutions and Social Influence in Exact Potential Games*.
- ADVISOR: Prof. Michele Flammini.

1999–2005 **M.s. (Laurea) in Computer Science**, Dept. of Computer Science, University of L'Aquila, L'Aquila, Italy.

- THESIS: *Analisi e Ottimizzazione di Algoritmi di Routing su Reti Stradali, (Analysis and Engineering of Vehicle Routing Algorithms)*.
- ADVISOR: Prof. Michele Flammini (Dept. of Computer Science, University of L'Aquila, L'Aquila, Italy).
- GRADE: 110/110 *cum laude* (with honor).

## Appointments

Oct. '09 – Present **Research Fellow** - Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore.  
Apr. '09 – Sep. '09 **Research Fellow** - Lehrstuhl für Informatik I (Algorithms and Complexity), RWTH Aachen University, Aachen, Germany.  
Jan. '09 – Mar. '09 **Research Assistant** - Lehrstuhl für Informatik I (Algorithms and Complexity), RWTH Aachen University, Aachen, Germany.

## Teaching Experiences

Fall 2011 *Teaching Assistant* for **Computational Economics**, Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore.  
Spring 2011 *Teaching Assistant* for **Mathematical Foundations of Game Theory**, Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore.  
Spring 2010 *Teaching Assistant* for **Calculus II**, Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore.

Spring 2006–2008 *Teaching Assistant for Algorithms and Data Structure II*, Dept. of Computer Science, University of L’Aquila, L’Aquila, Italy.

Fall 2005–2008 *Teaching Assistant for Computer Architecture I*, Dept. of Computer Science, University of L’Aquila, L’Aquila, Italy.

## Research Interests

Algorithmic Game Theory, Algorithms and Complexity, Combinatorial Optimization, Algorithm Engineering, Machine Learning.

## Honors

2005–2009 Italian Government Merit Fellowship during Ph.D. studies.

Spring, Fall 2004–2005 Fellowship awarded for merit by Research and Development Center of NEXT S.p.a. (Rome) (<https://www.next.it>) for the M.s. Thesis work.

1999–2005 Fellowship awarded for merit by D.S.U. (Regional Association for Study Rights) during M.s. studies.

## Publications

### Journal Papers

J-1 V. Bilò, I. Caragiannis, A. Fanelli, and G. Monaco. Improved lower bounds on the price of stability of undirected network design games. *Theory of Computing Systems*, accepted for publication.

J-2 A. Fanelli, M. Flammini, and L. Moscardelli. The Speed of Convergence in Congestion Games under Best-Response Dynamics. *ACM Transactions on Algorithms*, accepted for publication.

J-3 A. Fanelli and L. Moscardelli. On best response dynamics in weighted congestion games with polynomial delays. *Distributed Computing*, 24(5):245–254, 2011.

J-4 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. Graphical congestion games. *Algorithmica*, 61(2):274–297, 2011.

J-5 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. Performances of one-round walks in linear congestion games. *Theory of Computing Systems*, 49(1):24–45, 2011.

J-6 A. Fanelli, M. Flammini, and L. Moscardelli. On the convergence of multicast games in directed networks. *Algorithmica*, 57(2):301–324, 2010.

J-7 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. When ignorance helps: Graphical multicast cost sharing games. *Theoretical Computer Science*, 411(3):660–671, 2010.

J-8 V. Bilò, A. Fanelli, M. Flammini, G. Melideo, and L. Moscardelli. Designing fast converging cost sharing methods for multicast transmissions. *Theory of Computing Systems*, 47(2):507–530, 2010.

### Conference Papers

C-1 I. Caragiannis, A. Fanelli, N. Gravin, A. Skopalik. Efficient computation of approximate pure Nash equilibria in congestion games. *52nd Annual IEEE Symposium on Foundations of Computer Science, FOCS 2011*.

C-2 J. Augustine, N. Chen, E. Elkind, A. Fanelli, N. Gravin, and D. Shiryayev. Dynamics of profit-sharing games. *The 22nd International Joint Conference on Artificial Intelligence, IJCAI 2011*.

- C-3 V. Bilò, I. Caragiannis, A. Fanelli, and G. Monaco. Improved lower bounds on the price of stability of undirected network design games. *Algorithmic Game Theory, 3rd International Symposium, SAGT 2010*.
- C-4 V. Bilò and A. Fanelli. Computing exact and approximate nash equilibria in 2-player games. *6th International Conference on Algorithmic Aspects in Information and Management, AAIM 2010*.
- C-5 A. Fanelli, M. Flammini, and L. Moscardelli. Stackelberg strategies for network design games. *6th International Workshop on Internet and Network Economics, WINE 2010*.
- C-6 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. Performances of one-round walks in linear congestion games. *2nd International Symposium on Algorithmic Game Theory, SAGT 2009*.
- C-7 A. Fanelli and L. Moscardelli. On best response dynamics in weighted congestion games with polynomial delays. *5th International Workshop on Internet and Network Economics, WINE 2009*.
- C-8 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. Graphical congestion games. *4th International Workshop on Internet and Network Economics, WINE 2008*.
- C-9 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. Graphical congestion games with linear latencies. *20th Annual ACM Symposium on Parallel Algorithms and Architectures, SPAA 2008*.
- C-10 V. Bilò, A. Fanelli, M. Flammini, and L. Moscardelli. When ignorance helps: Graphical multicast cost sharing games. *33rd International Symposium Mathematical Foundations of Computer Science 2008, MFCS 2008*.
- C-11 A. Fanelli, M. Flammini, and L. Moscardelli. The speed of convergence in congestion games under best-response dynamics. *35th International Colloquium on Automata, Languages and Programming, ICALP 2008*.
- C-12 A. Fanelli, M. Flammini, D. Mango, G. Melideo, and L. Moscardelli. Experimental evaluations of algorithms for ip table minimization. *6th International Workshop on Experimental Algorithms, WEA 2007*.
- C-13 A. Fanelli, M. Flammini, and L. Moscardelli. On the convergence of multicast games in directed networks. *19th Annual ACM Symposium on Parallel Algorithms and Architectures, SPAA 2007*.
- C-14 A. Fanelli, M. Flammini, G. Melideo, and L. Moscardelli. Multicast transmissions in non-cooperative networks with a limited number of selfish moves. *31st International Symposium on Mathematical Foundations of Computer Science 2006, MFCS 2006*.
- C-15 A. Fanelli, M. Flammini, G. Melideo, and L. Moscardelli. Game theoretical issues in optical networks. In *8th International Conference on Transparent Optical Networks, ICTON 2006*.

## Book Chapters

- B-1 V. Bilò, I. Caragiannis, A. Fanelli, M. Flammini, C. Kaklamani, G. Monaco, and L. Moscardelli. Game-theoretic approaches to optimization problems in communication networks. In A. Koster and X. Muñoz, editors, *Graphs and Algorithms in Communication Networks*, Texts in Theoretical Computer Science. An EATCS Series, pages 241–263. Springer Berlin Heidelberg, 2010.

## Manuscript under submission

- M-1 I. Caragiannis, A. Fanelli, N. Gravin, A. Skopalik. Approximate pure Nash equilibria in weighted congestion games: Existence, efficient Computation, and structure. *CoRR*, abs/1107.2248v2, 2011.
- M-2 J. Augustine, I. Caragiannis, A. Fanelli, C. Kalaitzis. Enforcing efficient equilibria in cost sharing games via subsidies. *CoRR*, abs/1104.5642, 2011.
- M-3 A. Fanelli, L. Moscardelli, A. Skopalik. On the impact of fair best response dynamics. *CoRR*, abs/1104.4423, 2011.

## Professional Services

- Program Committee Member for the following conferences:
  - *13th ACM Conference on Electronic Commerce (EC)*, 2012.
  - *7th Workshop on Internet & Network Economics (WINE)*, 2011.
  - *22nd International Joint Conferences on Artificial Intelligence (IJCAI)*, 2011.
- Reviewed articles for several peer-reviewed *journals* (Games and Economic Behavior, Theoretical Computer Science, Theory of Computing Systems, Information Processing Letters, Computer Networks, IEEE Journal on Selected Areas in Communications, ...) and *conferences* (ICALP, ESA, STACS, IPDPS, WINE, SAGT, SIROCCO, ...).
- Gave several academic seminar and conference talks.

## References

- Michele Flammini** Prof., Dept. of Computer Science, University of L'Aquila, Via Vetoio Loc. Coppito, I-67100 L'Aquila, Italy. Phone: +39 0862 433730, Fax: +39 0862 433131.  
Email: flammini@di.univaq.it  
URL: <http://www.di.univaq.it/flammini>  
*Relationship: Ph.D. Advisor.*
- Edith Elkind** Assist. Prof., Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, 21 Nanyang Link, 637371 Singapore. Phone: +65 6513 2028.  
Email: eelkind@gmail.com  
URL: <http://www1.spms.ntu.edu.sg/~eelkind>  
*Relationship: current employer.*
- Ioannis Caragiannis** Assist. Prof., Dept. of Computer Engineering & Informatics, University of Patras, Building B, Room B053, 26500 Rio, Greece. Phone: +30 2610 997 512, Fax: +30 2610 969007.  
Email: caragian@ceid.upatras.gr  
URL: <http://www.ceid.upatras.gr/caragian>  
*Relationship: collaborator and Ph.D. Thesis reviewer.*
- Berthold Vöcking** Prof., Lehrstuhl für Informatik I, RWTH Aachen, D - 52056 Aachen, Germany. Phone: +49 241 80 21100, Fax: +49 241 80 22216.  
Email: voecking@cs.rwth-aachen.de  
URL: <http://algo.rwth-aachen.de/en/~voecking>  
*Relationship: past employer and Ph.D. Thesis reviewer.*
- Luca Moscardelli** Assist. Prof., Dept. of Science, University of Chieti-Pescara, Viale Pindaro 42, I-65127 Pescara, Italy. Phone: +39 085 453 7685, Fax: +39 0862 1960471.  
Email: moscardelli@sci.unich.it  
URL: <http://www.moscardelli.it>  
*Relationship: collaborator.*