Miguel A. Mosteiro

Contact Information

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Rutgers University
Computer Science Department
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Research Interests

Theoretical computer science, analysis of algorithms and data structures, lower bounds, etc. Currently focusing on radio networks and distributed computations. Previously, data structures and algorithms optimization in the hierarchical memory model, sorting algorithms and others.

Education

Rutgers University, Piscataway, New Jersey USA
Department of Computer Science

- Ph.D., June 2006
  Advisor: Martín Farach-Colton
- M.Sc., October 2003

Universidad Tecnológica Nacional, Buenos Aires, Argentina
Department of Electronics

- Electronics Engineer, 1984
  Undergraduate degree requiring 6 years of post High School training.

Ocupation

Universidad Rey Juan Carlos, Madrid, Spain
Laboratory of Distributed Algorithms and Networks (LADyR)

- July 2007—August 2010: Postdoctoral Researcher on distributed computation under adversarial behaviour and highly-constrained resources, under the supervision of Professor Antonio Fernández Anta. Partially funded by European Comission Marie-Curie International Reintegration Grant (IRG). 9/2007—8/2010.

Rutgers University, Piscataway, New Jersey, USA
Department of Computer Science

- July 2006—June 2007 and January 2008—December 2009: Postdoctoral Researcher on distributed communication and computation protocols under highly-constrained resources, under the supervision of Professor Martín Farach-Colton.

Grants

Adversarial Models in Sensor Networks.
European Comission Marie-Curie International Reintegration Grant.
Call: PEOPLE-2007-4-3-IRG. Proposal 210021. 9/2007—8/2010

Publications

A. Fernández Anta, C. Georgiou and M. A. Mosteiro. "Algorithmic Mechanisms for Internet-based Master-Worker Computing with Untrusted and Selfish Workers". *IPDPS*, 2010, submitted for acceptance.

A. Fernández Anta, M. A. Mosteiro and C. Thraves. "An Early-stopping Protocol for Computing Aggregate Functions in Sensor Networks". *JPDC*, 2009, submitted for acceptance.

M. Farach-Colton, A. Fernández Anta and M. A. Mosteiro. "Optimal Memory-aware Sensor Network Gossiping". *Algorithmica*, 2009, submitted for acceptance.

A. Fernández, C. Georgiou and M. A. Mosteiro. "Designing Mechanisms for Reliable Internet-based Computing under Collusion". *TPDS*, 2009, submitted for acceptance.

A. Fernández Anta and M. A. Mosteiro. "Unbounded Contention Resolution: k-Selection in Radio Networks". *IPL*, 2009, submitted for acceptance.

A. Fernández Anta, M. A. Mosteiro and C. Thraves. "An Early-stopping Protocol for Computing Aggregate Functions in Sensor Networks". *Proceedings of the IEEE 15th Pacific Rim International Symposium on Dependable Computing (PRDC)*, 2009, to appear.

A. Fernández Anta, M. A. Mosteiro and C. Thraves. "Brief Announcement: An Early-stopping Protocol for Computing Aggregate Functions in Sensor Networks". *Proceedings of the 22nd EATCS International Symposium on Distributed Computing (DISC)*, volume 5218 of *Lecture Notes in Computer Science*, pages 504-506, Springer-Verlag, 2008.

A. Fernández, C. Georgiou and M. A. Mosteiro. "Designing Mechanisms for Reliable Internet-based Computing". *Proceedings of the 7th IEEE International Symposium on Network Computing and Applications (NCA)*, pages 315-324, IEEE, 2008.

M. Farach-Colton, R. Fernandes and M. A. Mosteiro. "Bootstrapping Hop-optimal Networks in the Weak Sensor Model". *ACM Transactions on Algorithms*, volume 5, number 4, pages 1–30 , accepted February 2008, published October 2009.

A. Fernández, M. A. Mosteiro and C. Thraves. "Deterministic Coommunication in the Weak Sensor Model". *Proceedings of the 11th International Conference On Principles Of Distributed Systems (OPODIS)*, volume 4878 of *Lecture Notes in Computer Science*, pages 119-131, Springer-Verlag, 2007.

M. Farach-Colton and M. A. Mosteiro. "Sensor Network Gossiping or How to Break the Broadcast Lower Bound". *Proceedings of the 18th International Symposium on Algorithms and Computation (ISAAC)*, volume 4835 of *Lecture Notes in Computer Science*, pages 232-243, Springer-Verlag, 2007.

M. Farach-Colton and M. A. Mosteiro. "Initializing Sensor Networks of Non-uniform Density in the Weak Sensor Model". *Proceedings of the 10th International Workshop on Algorithms and Data Structures (WADS)*, volume 4619 of *Lecture Notes in Computer Science*, pages 565-576, Springer-Verlag, 2007.

M. Farach-Colton, R. Fernandes and M. A. Mosteiro. "Lower Bounds for Clear Transmissions in Radio Networks". *Proceedings of the 7th Latin American Theoretical Informatics Symposium (LATIN)*, volume 3887 of *Lecture Notes in Computer Science*, pages 447-454, Springer-Verlag, 2006.

M. A. Bender, M. Farach-Colton and M. A. Mosteiro. "Insertion Sort is $O(n \log n)$". *Theory of Computing Systems*, volume 39, number 3, pages 391-397. Springer-Verlag,

2006.

M. Farach-Colton, R. Fernandes and M. A. Mosteiro. "Bootstrapping Hop-optimal Networks in the Weak Sensor Model". *Proceedings of the 13th Annual European Symposium on Algorithms (ESA)*, volume 3669 of *Lecture Notes in Computer Science*, pages 827-838, Springer-Verlag, 2005.

M. A. Bender, M. Farach-Colton and M. A. Mosteiro. "Insertion Sort is $O(n \log n)$". *Proceedings of the 3rd International Conference on Fun with Algorithms (FUN)*, pages 16-23, 2004.

Projects Participation

Formal Specification and Program Construction using Fork Algebras . National Agency for Research and Technology, Argentina. 2000—2002. PI: Marcelo Fabián Frías.

Algorithms for Embedding Metric Spaces. National Science Foundation, USA. 1999—2004. PI: Martín Farach-Colton.

Activities in Applied Algorithmics . Sloan Foundation, USA. 2000—2003. PI: Martín Farach-Colton, Co-PIs: Fred Roberts, Craig Nevill-Manning.

Cache-Oblivious Data Structures. National Science Foundation, USA. 2001—2004. PI: Eric Demaine, Co-PIs: Larse Arge, Michael Bender, Martín Farach-Colton.

DIMACS Exploratory Postdoctoral Program in Computational Epidemiology. National Science Foundation, USA. 09/2002—08/2006. PI: Fred Roberts.

DIMACS Special Focus on Information Processing in Biology. National Science Foundation, USA. 09/2002—08/2006. PI: Fred Roberts.

DIMACS Special Focus on Computational and Mathematical Epidemiology. National Science Foundation, USA. 09/2002—08/2006. PI: Fred Roberts.

Techniques for Streaming File Systems and Databases. National Science Foundation, USA. 07/2006—07/2009. PI: Martín Farach-Colton.

High-Performance Data Access through Memory Abstraction. National Science Foundation, USA. 07/2006—12/2007. PI: Martín Farach-Colton.

Adversarial Contention Resolution. National Science Foundation, USA. 2006—2009. PI: Martín Farach-Colton.

Adversarial Models in Sensor Networks. **European Comission Marie-Curie International Reintegration Grant. Call: PEOPLE-2007-4-3-IRG. Proposal 210021. 9/2007—8/2010. PI: Miguel A. Mosteiro.**

Diseño de Redes Superpuestas Basadas en Posicionamiento. Ministry of Education and Science, Spain. TIN2008-06735-C02-01. 2008-2011. PI: Antonio Fernández Anta.

Sistemas Distribuidos Autonómicos, Conables y de Altas Prestaciones. Comunidad Autónoma de Madrid, Spain. S-0505/TIC/0285. 2006-2009. PI: Antonio Fernández Anta.

Invited Talks

8/18/05 - Universidad de Buenos Aires, Computer Science Department: *Bootstrapping*

a Hop-optimal Network in the Weak Sensor Model.

10/7/05 - Universidade de Vigo, Telematics Engineering Department: *Upper and Lower Bounds in Radio Networks.*

10/10/05 - Universitat Politécnica de Catalunya, Department of Languages and Informatics Systems: *Upper and Lower Bounds in Radio Networks.*

10/11/05 - Universidad Rey Juan Carlos, Department of Telematics Engineering and Electronics Technology: *Upper and Lower Bounds in Radio Networks.*

10/13/05 - Universidad Politécnica de Madrid, Applied Mathematics Department: *Upper and Lower Bounds in Radio Networks.*

2/2/06 - Bell Labs Research: *Upper and Lower Bounds in Radio Networks.*

2/17/06 - AT&T Labs Research: *Upper and Lower Bounds in Radio Networks.*

4/16/07 - Universidad Rey Juan Carlos, Department of Telematics Engineering and Electronics Technology: *Deterministic Transmissions under Adversarial Behaviour.*

3/6/09 - Universidad Autónoma de Madrid, Department of Computer Science: *An Early-stopping Protocol for Computing Aggregate Functions in Sensor Networks.*

9/22/09 - Workshop on Reliability and Security in Wireless Networks 2009 (co-located with DISC 2009): *Unbounded Contention Resolution: k-Selection in Radio Networks.*

Scientific Activities

Member of the Organizing Committee of the 23rd International Symposium on Distributed Computing, DISC. Elche/Elx, Spain, September 23-25, 2009.

2008–2009 - Assistant of the Editorial Board of the ACM Transactions of Algorithms.

Fellowships, Honors and Awards

European Comission
Marie-Curie International Incoming Fellowship. Call: FP7-PEOPLE-IIF-2008. Proposal 237650:"Sensor Networks under Adversarial Models". The proposal was approved among only fourteen approved projects in the area. The proposal was not funded due to budgetary constraints. Only four out of the fourteen approved projects in the area were funded.

DIMACS, Center for Discrete Mathematics and Theoretical Computer Sci.
Graduate Support Summer Awards 2003, 2004, 2005, 2006
Graduate Support Winter Awards 2004/05, 2005/06

Rutgers University
Graduate School Fellowship for Doctoral Study in Computer Science 2001—2003

Ministry of Education and Science, Spain
Excellence Fellowship for the Education of Emigrants Descendants 1974—1978

Teaching Experience

Rutgers University, Piscataway, New Jersey USA

Department of Computer Science.
Instructor Summer 2005
Teaching Assistant Fall 2001—Fall 2002, Fall 2004—Spring 2005, Fall 2005—Fall 2006
Management Information Systems Department.
Instructor Fall 2003—Spring 2004

University of Buenos Aires, Buenos Aires, Argentina
Department of Computer Science. (on leave since 09/2001)
Head Teaching Assistant 2000—2003
First Class Teaching Assistant 1999—2002
Department of Electronics.
First Class Teaching Assistant 1991—1992

Buenos Aires Institute of Technology, Buenos Aires, Argentina
Department of Computer Engineering.
Head Teaching Assistant 1989—1996

Professional Experience

Codas Electrónica SA
Cordoba 6044, Buenos Aires, Argentina. Voice/Fax 54(114)772-5851
Development engineer 1988—1996
Codas Electrónica is a company devoted to the production of microprocessors development equipment, standard modules for industrial applications, instrumentation, etc. Responsabilities : microprocessors based hardware and software development, debugging and prototypes.

Other activities/Skills

Graduate representative 2000—2001
Departmental Council, Computer Science Dept., School of Sciences, University of Buenos Aires.

President and co-founder 2004—2006
Argentinian Students, Faculty and Scholars Association at Rutgers University.

Languages
Spanish Castillian, English, Spanish Galician, fluent. Portuguese, reading and comprehension.

Last Update: October 2009