

MIGUEL E. ANDRÉS

GENERAL INFORMATION

Place of Birth: Río Cuarto, Córdoba, Argentina
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EDUCATION

PhD in Computer Science 2006–2010

Digital Security group at [Radboud University](#), The Netherlands.
Supervisors: [Bart Jacobs](#), [Peter van Rossum](#), and [Catuscia Palamidessi](#).

Master in Computer Science 2004–2006

[FaMAF](#), Universidad Nacional de Córdoba, Argentina.
Average grade: 8.22*. Note: No exams were failed.

Bachelor in Computer Science 1999–2003

[FaMAF](#), Universidad Nacional de Córdoba, Argentina.
Average grade: 7.71*. Note: No exams were failed.

* Range: 1–10. Passing Mark: 4. Rank: 5th best global mark out of 269 students.

EXPERIENCE

Post-doctoral researcher at the École Polytechnique (France) 2010 to date

I am a post-doctoral researcher in the INRIA group [Comète](#) at the [École Polytechnique](#). In my current position I am focussing on applying my previous research to practical problems in computer security. I am particularly interested in disclosure prevention in statistical databases, privacy in cloud-based services, and formal verification techniques. Although I have joined the Comète group only recently, I am already a very active member. My contributions to the group include the publication of several articles, the development (in Java) of a tool to aid in the analysis of information-leakage of systems, the participation in pursuing international projects and funding for the group, and the co-supervision of a PhD student in the Comète project “Privacy issues in Cloud-computing”.

PhD student at Radboud University (The Netherlands) 2006–2010

I obtained my PhD in Computer Science in the [Digital Security](#) group at the Nijmegen Institute for Computing and Information Sciences (ICIS), [Radboud University](#). My research was mainly focused on the application of formal methods to computer security problems, in particular in the areas of formal verification and information leakage analysis. The most important contributions of my PhD dissertation include the development of model-checking algorithms to verify complex systems automatically, as well as the invention of techniques that facilitate the debugging of such systems. This research led to the publication of twelve articles in leading journals, conferences, and workshops in Computer Science. I also had the opportunity to attend several high-quality international conferences and computer science courses, and to work with some of the most recognized scientists in my areas of research.

Co-founder of PuntoAr Informatics Solutions (Argentina) 2004–2006

In 2004, I co-founded [PuntoAr Informatics Solutions](#) (nowadays called Cobax ID). The company was initially meant to provide information technology support to small and medium-sized companies. PuntoAr grew quickly and within a few months its services expanded to include software development; network installation, configuration and maintenance; web and graphic design; and computer repair and sales. The clients of the company vary from big telecommunication companies and law firms to restaurants

and pharmacies. I was closely involved in all the activities of the company; my responsibilities included software development, network installation, server installation and maintenance, IT counseling, and attracting new clients.

Junior Software Engineer at Tarjeta Naranja (Argentina)

2004

[Tarjeta Naranja](#) is the leading payment-service company in Argentina. With more than 172 branches spread nationwide, it owns more than sixty percent of the credit card market of the country, outperforming international credit card services such as Visa and Mastercard. In 2004, I joined the company as a Junior Software Engineer. Although I did not have prior experience with COBOL, the programming language in which most of the company's systems were implemented, I quickly learnt it and became a productive member of my group. My tasks consisted mostly of developing small and specific pieces of software that were requested by the company's employees, as well as debugging existing software. The common denominator of my tasks was time pressure: most of my tasks needed to be accomplished within one day.

Computer Technician at Air Force Social Security (Argentina)

2001–2003

Initially my tasks at the [Air Force Social Security](#) were mostly administrative. However, soon after becoming familiar with the tasks carried on by my group, I proposed to develop a small piece of software with the purpose of digitizing all the information needed to perform these tasks. The idea was welcomed, and I implemented (in Visual Basic MS Access) a small system that allowed the group members to input and manipulate all the information involved in their tasks. Thereafter, my tasks became mostly IT related: I was in charge of the installation, configuration, and maintenance of all the institution's equipment (about 40 PCs at that time).

Others (Argentina)

1993–2004

Volunteer activities (5 years), freelance computer technician (4 years), government-auctioneer assistant (1 year), advertising model (several adverts).

ACADEMIA

Information about my publications, conference presentations, courses attended, research visits, and other academic activities and achievements can be found in the appendix below.

ADDITIONAL INFORMATION

Programming languages

Substantial Experience with: C, Java ([Oracle certified: OCP-JP](#)), Haskell, and \LaTeX .

Some Experience with: COBOL, Pascal, Visual Basic, HTML, and SQL.

Grant competitions

- Lix-Qualcomm 2011 Postdoctoral Grant competition – First place.
- Lix-Qualcomm 2010 Postdoctoral Grant competition – First place.
- ERCIM Alain Bensoussan 2010-2011 Postdoctoral Fellowship competition – First place.
- NWO PhD Competition for the project "Analysis of Anonymity" (2006) – First place.

Organizations and projects

- Member of the Marie Curie European-Argentinian project "MEALS: Mobility between Europe and Argentina applying Logics to Systems".
- Member of the steering committee of the Security PhD Association Netherlands ([SPAN](#)).
- Member of the Institute for Programming research and Algorithmics ([IPA](#)).

Languages

Spanish (Native), English (Fluent), French (Basic), Italian (Basic), Dutch (Basic).

Hobbies

Cinema, guitar, squash, tennis, chess, camping, and travel.

REFERENCES

Provided upon request.

APPENDIX

Academic achievements and activities

PUBLICATIONS

Journals

Miguel E. Andrés, Catuscia Palamidessi, Peter van Rossum, and Ana Sokolova.

Information Hiding in Probabilistic Concurrent Systems.

Journal of Theoretical Computer Science, volume 412, pages 3072-3089, Elsevier, 2011.

Mário S. Alvim, Miguel E. Andrés, and Catuscia Palamidessi.

Information Flow in Interactive Systems.

To appear in the Journal of Computer Security, 37 pages, 2011.

Peer-reviewed Conferences and Workshops (selected)

Mário S. Alvim, Miguel E. Andrés, Konstantinos Chatzikokolakis,

Pierpaolo Degano, and Catuscia Palamidessi.

Differential Privacy: on the trade-off between Utility and Information Leakage.

To appear in Proceedings of the 8th Int. Workshop on Formal Aspects of Security & Trust, FAST 2011.

Mário S. Alvim, Miguel E. Andrés, Konstantinos Chatzikokolakis, and Catuscia Palamidessi.

On the relation between Differential Privacy and Quantitative Information Flow.

In Proceedings of Automata, Languages and Programming, 37th International Colloquium, ICALP 2011, pages 60-76, LNCS, Springer 2011.

Mário S. Alvim, Miguel E. Andrés, Catuscia Palamidessi, and Peter van Rossum.

Safe Equivalences for Security Properties.

In proceedings of Theoretical Computer Science, TCS 2010, pages 55-70, IFIP, Springer, 2010.

Miguel E. Andrés, Catuscia Palamidessi, Peter van Rossum, and Ana Sokolova.

Information Hiding in Probabilistic Concurrent Systems.

In Proceedings of 7th International Conference on the Quantitative Evaluation of Systems, QEST 2010, pages 17-26, IEEE Computer Society 2010.

Mário S. Alvim, Miguel E. Andrés, and Catuscia Palamidessi.

Information Flow in Interactive Systems.

In Proceedings of Concurrency Theory, 21st International Conference, CONCUR 2010, pages 102-116, LNCS, Springer 2010.

Mário S. Alvim, Miguel E. Andrés, and Catuscia Palamidessi.

Probabilistic Information Flow.

In Proceedings of the 25th Annual IEEE Symposium on Logic in Computer Science, LICS 2010, pages 314-321, IEEE Computer Society 2010.

Miguel E. Andrés, Catuscia Palamidessi, Peter van Rossum, and Geoffrey Smith.

Computing the Leakage of Information-Hiding Systems.

In Proceedings of Tools and Algorithms for the Construction and Analysis of Systems, 16th International Conference, TACAS 2010, pages 373-389, LNCS, Springer, 2010.

Miguel E. Andrés, Pedro D'Argenio, and Peter van Rossum.

Significant Diagnostic Counterexamples in Probabilistic Model Checking.

In Proceedings of 4th Int. Haifa Verification Conf., HVC 2008, pages 129-148, LNCS, Springer, 2009.

Miguel E. Andrés and Peter van Rossum.

Conditional Probabilities over Probabilistic and Nondeterministic Systems.

In Proceedings of Tools and Algorithms for the Construction and Analysis of Systems, 14th International Conference, TACAS 2008, pages 157-172, LNCS, Springer, 2008.

Dissertations

Miguel E. Andrés. PhD dissertation, July 2011.

Quantitative Analysis of Information Leakage in Probabilistic and Nondeterministic Systems

Miguel E. Andrés. Master thesis, September 2006.

Derivation of Counterexamples for Quantitative Model Checking.

PRESENTATIONS

Conferences and Workshops

Quantitative Information Flow Workshop, Miami, USA (April 2011).

Bellairs 2011, Bellairs, Barbados (April 2011).

IFIP-TCS 2010. Brisbane, Australia (September 2010).

QEST 2010. Williamsburg, USA (September 2010).

TACAS 2010. Paphos, Cyprus (March 2010).

Dagstuhl Seminar 10051. Dagstuhl, Germany (February 2010).

4th ReSeCo Workshop. Córdoba, Argentina (December 2009).

9th SPAN Workshop. Enschede, The Netherlands (April 2009).

HVC 2009. Haifa, Israel (October-November 2008).

TACAS 2008. Budapest, Hungary (March-April 2008).

7th SPAN Workshop. Eindhoven, The Netherlands (October 2007).

Invited Talks

École Polytechnique. Paris, France (November 2009).

École Polytechnique. Paris, France (May 2009).

Universidad Nacional de Córdoba. Córdoba, Argentina (December 2008).

RWTH Aachen University. Aachen, Germany (September 2008).

Universidad Nacional de Córdoba. Córdoba, Argentina (December 2007).

OTHERS

Courses

Java Professional Programmer.

Koenig-Solutions, India (August 2011).

Object-Oriented Programming Course.

Koenig-Solutions, India (August 2011).

Writing Scientific English Course.

Radboud University Nijmegen, The Netherlands (January-April 2008).

Algorithms and Complexity course (IPA).

TU Eindhoven, The Netherlands (June 2007).

Verification of Security Protocols.

TU Eindhoven, The Netherlands (February-June 2007). Lecturer: Dr Christian Haack.

Evolution of Software Composition Mechanisms.

Cordoba, Argentina (February 2006). Lecturer: Dr. Eng. Carlo Ghezzi.

Natural Language Processing Course.

Cordoba, Argentina (January 2004). Lecturer: Dr Pablo Duboue.

International Symposium of Engineering and Software Development.

Buenos Aires, Argentina (November 2003).

Summer schools

International School on the Foundations of Security Analysis and Design (FOSAD)
University Residential Centre of Bertinoro, Italy (August 2011).

International School on Formal Methods for the Design of Computer,
Communication and Software Systems: QAPL (SFM-10)
University Residential Centre of Bertinoro, Italy (June 2010).

International School on the Foundations of Security Analysis and Design (FOSAD)
University Residential Centre of Bertinoro, Italy (August 2008).

International School on the Foundations of Security Analysis and Design (FOSAD)
University Residential Centre of Bertinoro, Italy (September 2007).

Research Visits

Group of Geoffrey Smith at Florida International University, Miami, USA.
Period: April 2010.

Group of Catuscia Palamidessi at École Polytechnique. Paris, France.
Periods: April-May 2009, November 2009, February 2010, May 2010, and November 2011.

Group of Joost-Pieter Katoen at RWTH Aachen University. Aachen, Germany.
Period: September 2008.

Group of Pedro D'Argenio at FaMAF. Cordoba, Argentina.
Periods: November 2007-January 2008, December 2008-January 2009, December 2010-January 2011.

Academic duties

Co-editor (together with Catuscia Palamidessi and Geoffrey Smith) of the volume “Quantitative Information Flow”. Special issue of the journal of Mathematical Structures in Computer Science (to appear).

Member of the program committee of the workshop on Security in Concurrency (SECCO), Aachen, Germany, 2011.

Teaching

Probability & Statistics (2001–2003).
Mathematics (2001–2002).