Curriculum Vitae

1 Personal Data

First and Last Name :	Nicolás Wolovick
Date of Birth:	June 4, 1974
	City of Córdoba, Argentine
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2 Education

- **2004-2012** PhD in Computer Science, FaMAF, Universidad Nacional de Córdoba, advisor: Pedro R. D'Argenio, title: "Continuous Probability and Nondeterminism in Labeled Transition Systems".
- **1993-1999** Degree of "Licenciado en Computación", FaMAF, Universidad Nacional de Córdoba, advisor: Javier Blanco, title: "Multiprogram Derivation".
- **1987-1992** Degree of "Technician in Industrial Electronics" at High School IPET 20 (currently IPEM 66) José Antonio Balseiro Institute, Córdoba, Argentine.

3 Teaching Experience

- **July 2012**, CUDA course at ECAR12, Computer Science Department, UBA, Argentine.
- **May 2011**, CUDA course at First Argentinean School on GPGPU Computing for Scientific Applications, FaMAF, UNC, Argentine.
- **From september 2012 on**, Full Professor in the following courses:

Parallel Computing	16, 14.
Operating Systems	15, 14, 13, 12.
Computer Organization	15, 13.

- **From march 2000 on**, full time Teaching Assistant in the following courses:

Parallel Computing[1]	12
Operating Systems Implementation[2]	11
Networks and Distributed Systems	11
High Performance Computing: Models, Methods and Means[3]	10, 09
Concurrent Programming in Java[4]	10, 09, 08
Operating Systems	10, 09, 08, 07, 06, 05, 04, 03, 02
Introduction to Algorithms	08, 07, 06, 05, 04
Concurrent Programming	08, 05, 03[5], 01
Algorithms II	02
Computer Organization	01, 00
Databases	00

- **1995-1997** Part time undergraduate teaching assistant in the following courses:

Computer Organization	97, 96, 95
Discrete Mathematics	97, 96
Algorithms and Data Structures	95

- Supervisor of graduate students:

Former

Eng. Javier Nicolás Uranga[6]	"Scaling for Potts Model in OpenMP&MPI"
Eng. Alberto José Andreotti[7]	"High Performance Computing using Hadoop"

- Supervisor of undergraduate students:

Current

Miguel Vargas Calderón	"Wheather Forecast Acceleration for Environmental Early Alerts"
Emanuel Lupi	"Optimization of the computation for solving problems of one and two-particles in a p
Lionel Hubmann	"Task-based GPU Barnes-Hut method"

Former

Gabriel Miretti[8]	"Optimizing Probabilities of Real-Time Test Case Execution"
Gustavo Petri[9]	"Cooperative Caching for Trieste"
Marcos Dione[10]	"Trieste: a Distributed File System"
Miguel Vásquez[11]	"A Comparative Verification of Miller-Rabin Algorithm"
Laura Brandán Briones[12]	"Multiprograms with Semaphores"

4 R&D Team Management

- **August 2011 to August 2012**, director of Matías Tealdi in a CIN scholarship (Becas Estímulo a las Vocaciones Científicas), on the topic "Massive Paralell Algorithms for the Verification of Probabilistic Systems".
- **2011 on**, advisor of Dionisio Alonso, intern at Intel Argentinean Sofware Developer Center (ASCD).
- **August 2010 to November 2010**, codirector of one scholarship on GPGPU Computing given to Carlos Bederián, funded by an NVIDIA Professor Partnership Award.
- **June 2009 to June 2010**, codirector of two scholarships on GPGPU Computing (Dionisio Alonso, Juan Pablo De Francesco), funded by an NVIDIA Professor Partnership Award.
- **June 2004**, advisor of Lucas Caro in the setup and deployment of an heterogeneous Beowulf Cluster for protein folding computations.

[1] Awarded by NVIDIA CTC Program and NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing.

[2] Postgraduate course.

[3] Unstructured Postgraduate, and Graduate Course, FaMAF. Sincronized with Prof. Thomas Sterling's CSC7600.

[4] Postgraduate Course of Specialization in Distributed Systems and Services, FaMAF - Intel's Software Development Center (ASDC) - Córdoba Government.

[5] Remote assistance of one undergraduate student and one graduate student, Universidad de la República - InCo, Uruguay.

[6] in cooperation with PhD. Javier Blanco, final work of the Specialization Programme on Distributed Systems and Services.

[7] in cooperation with PhD. Javier Blanco, final work of the Specialization Programme on Distributed Systems and Services, finished June 2011.

[8] in cooperation with PhD. Oscar Reula.

[9] in cooperation with PhD. Pedro R. D'Argenio, finished December 2010.

[10] in cooperation with PhD. Matías Cuenca Acuña, finished in September 2005.

[11] in cooperation with Mg. Matías Cuenca Acuña, finished in July 2004.

[12] in cooperation with PhD. Pedro D'Argenio, finished in May 2004.

[13] in cooperation with PhD. Javier Blanco, finished in March 2003.

5 Research Experience

- **2014-2017**, director of the project "Heterogeneous High Performance Computing", supported by UNC.
- **September 2012 to March 2013**, member of "Argentinean Gravitational Wave Group" (AGWG), LIGO Scientific Collaboration (LSC).
- **2010-2013**, codirector of the project "Automatic Verification of Probabilistic and Nondeterministic Programs using Theorem Provers", periods 2012-2013 and 2010-2011, supported by UNC.
- **2009 on**, founder member of the "GPGPU Computing Group", FaMAF, UNC.
- **2009**, codirector of the project "Methods for the Analisis of Probabilistic and Nondeterministic Programs using Theorem Provers", PID2008, MinCyT, Córdoba Province Government.
- **From September 2008 to December 2010**, member of the project "Numerical Simulations of Physics Systems using CUDA", NVIDIA Professor Partner Funding Grants, granted to PhD. Oscar Reula.
- **From 2006 to 2009**, member of the project "Verification of Distributed Probabilistic Systems", granted by ANPCyT, project PICT 26135.
- **2004, and from 2006 to 2009**, member of the project "Formal Techniques for the Development of Programs and Reactive Systems", supported by UNC.
- **From 2006 to 2008**, member of the project "Methods and Basis for the Correctness and Performance Analysis of Concurrent and Randomized Programs", granted by CONICET, project PIP 6391.
- **From May 2005 on**, categorized Teacher-Researcher of Level 4, Argentine Ministry of Education, Science and Technology.
- **2005**, member of the project "Probabilistic Algorithms: Fundations and Applications", supported by UNC.
- **From 2001 to 2002**, member of the project "Program Transformation", supported by UNC.

6 Working Experience

- **November 2013, August 2014**, team leader of a group of six programmers and consultants to parallelize in GPU an object tracking software in a realtime flow of images, INVAP-FaMAF.
- **From March 2003 to December 2003**, part-time programmer for a Remote File System adaptation, Informatics Transfer Center, FaMAF, UNC.
- **June 2001**, **July 2002** C++ Builder programmer of a Nuclear Magneto Resonance data acquisition software for the "NMR Group", FaMAF, UNC.
- **February 2001** Installation and set up of a sixteen node Intel beowulf cluster, FaMAF, UNC.
- **April to December 2000** Data migration of administrative student information from DBase III to SIU-Guaraní system over Informix using Delphi, FaMAF, UNC.
- **From November 1999 to August 2003**, computer facilities system administrator of GTMC "Condensed Matter Theory Group", FaMAF, UNC.
- **July to October 1998** Internship in the "Emissions Inventory Group" working on Geographical Information Systems, Environmental Observatory, Municipality of Córdoba.
- **June 1998** Internship in Faculty of Philosophy and Humanities, National University of Córdoba, reporting about the implementability of a system to record the budget assigned to teaching activities.
- **1996-1997** Internship in Prosecretary of Informatics, National University of Córdoba, working on TCP/IP networks, development of web-based applications and Linux and Windows system administration and support.

7 Publications

Book Chapters

- Ezequiel García, Nicolás Wolovick, "*Capítulo 8: La computadora*", "*Capítulo 9: La memoria y la CPU*", Manual de Segundo Ciclo de Primaria para Docentes de Computación, Fundación Sadosky, en prensa.
- Pedro R. D'Argenio, Carlos E. Budde, Matías David Lee, Raúl E. Monti, Leonardo Rodríguez, Nicolás Wolovick, "*The Road from Stochastic Automata to the Simulation of Rare Events*", ModelEd, TestEd, TrustEd, LNCS, Volúmen 8453, 2014, pp 67-86.
- Carlos E. Budde, Pedro R. D'Argenio, Pedro Sánchez Terraf, Nicolás Wolovick, "*A theory for the semantics of stochastic and non-deterministic continuous systems*", ROCKS Autumn School, LNCS, Volúmen 8453, 2014, pp 67-86.

Journals

- E.N. Millán, C.J. Ruestes, N. Wolovick, E.M. Bringa, "*Boosting Materials Science Simulations by High Performance Computing*", Mecánica Computacional 35(10), High Performance Computing, 2017.
- Emmanuel N. Millán, Nicolás Wolovick, María Fabiana Piccoli, Carlos García Garino, Eduardo M. Bringa, "*Performance analysis and comparison of cellular automata GPU implementations*", Cluster Computing, doi:10.1007/s10586-017-0850-3, 2017.
- Ezequiel E. Ferrero, Juan Pablo De Francesco, Nicolás Wolovick, Sergio A. Cannas, "*q-state Potts model metastability study using optimized GPU-based Monte Carlo algorithms*", arXiv:1101.0876, Computer Physics Communications, 183(8), August 2012.
- Pedro R. D'Argenio, Pedro Sánchez Terraf, Nicolás Wolovick, "*Bisimulations for non-deterministic labelled Markov processes*", Mathematical Structures in Computer Science, 22(1), February 2012.

Conferences

- M. Guignard, M. Schild, C. Bederián, N. Wolovick, A. Vega, "*Performance Characterization of State-Of-The-Art Deep Learning Workloads on a Minsky Platform*", HICSS-51, Hawaii, EEUU, 2018.
- Pablo Ferreyra, Agustín Laprovitta, Delfina Velez Ibarra, Gonzalo Vodanovic, Nicolás Wolovick, "*LEGv8, Raspberry Pi 3 y una vieja fórmula*", WIEI CACIC 2017, La Plata, Argentina, 2017.
- Carlos Bederián, Nicolás Wolovick, "*A Project-based HPC Course for Single-box Computers*", EduHPC-16, SC16, Salt Lake City, EEUU.
- Martin Fränzle, Ernst Moritz Hahn, Holger Hermanns, Nicolás Wolovick, Lijun Zhang, "*Measurability and Safety Verification for Stochastic Hybrid Systems*", HSCC2011, Chicago, USA.
- Damián Barsotti, Nicolás Wolovick, "*Automatic Probabilistic Program Verification through Random Variable Abstraction*", QAPL10, Paphos, Cyprus.
- Pedro R. D'Argenio, Nicolás Wolovick, Pedro Sánchez Terraf, Pablo Celayes, "*Nondeterministic Labeled Markov Processes: Bisimulations and Logical Characterization*", QEST09 (best paper award), Budapest, Hungary.
- Nicolás Wolovick, Pedro R. D'Argenio, Hongyang Qu, "*Optimizing Probabilities of Real-Time Test Case Execution*", ICST09, Denver, USA.
- Nicolás Wolovick, Sven Johr, "*A Characterization of Meaningful Schedulers for Continuous-Time Markov Decision Processes*", LNCS 4202, FORMATS06, Paris, France.
- Javier Blanco, Nicolás Wolovick, "*Strengthen, Widen, Get Semaphores*", WAIT 2003, 32 JAIIO, Buenos Aires, Argentine, September 2003.
- Nicolás Wolovick, "*An Experience with Lava in Computer Organization*", 3rd Chilean Congress of Higher Education in Computing, Punta Arenas, Chile, November 2001.

Posters

- Jorge Atala, Carlos Bederián, Andrés Bordese, Gastón Ingaramo, Facundo Gaich, Julia Medina, Maximiliano Rosetti, Jorge Sánchez, Matías Tealdi, Nicolás Wolovick, "Real-time FullHD Tracking-Learning-Detection on a 2-SMX GPU", GTC 2015.

Technical Reports

- J.A. Díaz Pace, D. Zanarini, I. Arce, M. Cristiá, P. Mandolesi, H. Melgratti, G. Uicich, N. Wolovick, E. Zavalla, F. Bergero, "*Análisis De Factibilidad en la Implementación de Tecnología en Diferentes Aspectos y Etapas del Proceso Electoral*", CONICET, nov 2017.
- Miguel Vásquez, Nicolás Wolovick, Pedro R. D'Argenio, "*Probabilistic Hoare-like Logics in Comparison*", Technical Report, FaMAF, UNC., September 2004.
- Nicolás Wolovick, "*Multiprogram Derivation*", Technical Report, FaMAF, UNC., February 2000.

8 Talks

- "*From Playstation to University*", Conferencias Populares, Academia Nacional de Ciencias, July 23, 2014.
- "*Embedded Supercomputing*", Hackers&Founders, SemanaTIC, September 2, 2014.
- "*High-throughput Computing and Big Data. What can UNC contribute?*", Jornadas de Definición Estratégica en Big Data, Sadosky Foundation, CABA, Argentine, August 2013.
- "*NLMP, definition, uses y comparisons*", PEG Group, PUCRS, Porto Alegre, Brazil, September 2011.
- "*Peak Performance for an Application in CUDA*", WHPC10, La Falda, Argentine, May 2010.
- "*Optimizing Probabilities of Real-Time Test Case Execution*", ICST09, Denver, USA, April 2009.
- "*A Characterization of Meaningful Schedulers for Continuous-Time Markov Decision Processes*" and "*Event bisimulation for LMP, and the road to nondeterminism*", VOSS II meeting, Kerkrade, The Netherlands, September 2006.

9 Outreach

- **2 June 2016** Curiosos por Naturaleza interview.
- **13 July 2015** Ciudad U, UNC Supercomputers.
- **1 August 2014** La Voz del Interior interview Referentes Regionales en GPU Computing.
- **4 de June 2013** Radio La Ronda interview about the Mendieta cluster.
- **18 de December 2012** CONICET news portal interview about the collaboration in the LIGO project.

10 Scholarships, Honors and Awards

- **September 2016**, IBM Faculty Award for "Resilient Scale-Out for Deep Learning on Power Systems", with Augusto Vega, T.J. Watson Research Center, 40.000 USD.
- **2011 on** GPU Education Center Program to include CUDA content in a regular course at UNC.
- **December 2011** NSF/IEEE-TCPP Curriculum Initiative on Parallel and Distributed Computing award for the course Parallel Computing, first semester 2012, FaMAF, UNC.
- **September 2010 to February 2012** Scholarship to finish PhD studies, SeCyT, UNC.
- **May 2010** Intel 32 Core Testing Plan winner in the Intel Manycore Testing Lab, with the project "*Matrix Multiplication: Performance and Scalability in OpenMP*", High Performance Computing course, FaMAF, UNC.

- **September 2010** Best paper award for "*Nondeterministic Labeled Markov Processes: Bisimulations and Logical Characterization*", QEST09.
- **July 2004** Alßan Scholarship for joint PhD program National University of Córdoba, Twente University – Formal Methods and Tools, (Enschede, The Netherlands), Universitët des Saarlandes – Dependable Systems and Software (DSS, Saarbrücken, Germany).
- **September 2000** Third place in the undergraduate thesis contest EST2000, 29JAIIO, Tandil, Argentine.

11 Conferences, Workshops and Symposiums Attended

- **August 2015** CARLA 2015, Petrópolis, Brazil.
- **October 2014** CARLA 2014, Valparaíso, Chile.
- **April 2009** 2nd International Conference on Software Testing, Verification, and Validation, ICST09, Denver, USA, April 2009.
- **February 2009** Symposium on Automatic Program Verification (APV09), Río Cuarto, Argentine.
- **September 2006** International Conference on Formal Modelling and Analysis of Timed Systems (FORMATS06), Paris, France.
- **September 2005, 2004** International Conference on Quantitative Evaluation of Systems: QEST05, Torino, Italy; QEST04, Enschede, The Netherlands.

12 Scientific Management and Review

- **July 2013** Proceedings Manager for CONCUR13 and QEST13.
- **May 2013** Chair of the "Segundo Encuentro Nacional de Computación de Alto Rendimiento para Aplicaciones Científicas (WHPC13)", FaMAF, UNC.
- Program Committee for the following conferences and workshops: CLCAR13, HPCLatAm13, CLCAR12, HPCLatAm12, SCCG12, CLCAR11, SAC-SVT10.
- **August 2013, 2011** Co-chair of the 6th and 4th Argentinean Symposium on High Performance Computing (HPCLatAm11 - HPCDay13), Córdoba, Argentine.
- **May 2011** Organizing and Scientific Committee of the "First Argentinean School on GPGPU Computing for Scientific Applications", FaMAF, UNC.
- Referee in the following journals: CLEI Electronic Journal–CLEIej, Journal of Supercomputing–JSC (Springer), Software Tools for Technology Transfer–STTT (Springer).
- Referee in the following conferences, workshops and symposiums: FACS2013, CLCAR13, HPCLatAm13, MECOM12, CLCAR12 SCCG12, HPCLatAm12, QEST12, HPCLatAm11, CLCAR11, QEST11, QEST10, CAV10, SAC-SVT10, FSTTCS09, CONCUR09, SAC-SVT09, CSL2007, LADC2007, QEST2005, CAV2005, EST2004, CLEI2004, FORMATS-FTRTFT 2004, LATIN2004, CACIC2003, CLEI2002, WAIT2002.

13 Courses Attended

- "Multiprogram Derivation", PhD. Javier Blanco, FaMAF, UNC, second semester 2008.
- "First European-SouthAmerican School for Embedded Systems", Universidad Argentina de la Empresa (UADE), Buenos Aires, Argentine, August 21-24, 2007.
- "Coalgebras in Measurable Spaces", PhD. Ignacio Viglizzo, FaMAF, UNC, December 2006, 6 hours.
- "Modelling and Analysis of Concurrent Systems I & II", MsC courses, PhD. Ed Brinksma, Joost-Pieter Katoen, et.al., EWI, Twente University, The Netherlands, second semester 2004.
- "Measure Theory", regular course of Math curricula, FaMAF, UNC, first semester 2004.

- "Winter School on Semantics and Applications", Montevideo, Uruguay, 21-31 July 2003, 2 weeks.
- "Verification of Sequential and Concurrent Programs", PhD. Leonor Prensa-Nieto, RIO2003, Río Cuarto, Argentine, February 2003, 12.5 hours.
- "Scientific Visualization and Communication", PhD. Teresa Larsen, PASI'2002 - PANAM'2002, FaMAF, UNC, July 2002, 10 hours.
- "High Performance Computing using Linux Clusters", ICTP - The Abdus Salam International Center for Theoretical Physics, Trieste, Italy, February 2002, 2 weeks.
- "Tool-based Verification of Java Programs", PhD. Marieke Huisman, Computing Science Department (InCo) of the Engineering School, Universidad de la República, Montevideo, November 2001, 20 hours.
- "Critical Systems Verification", PhD. Pedro D'Argenio, FaMAF, UNC, Argentine, second semester 2001.
- "UNITY logic and distributed algorithms; Mobile UNITY", PhD. Gruia Catalin Roman, ECI2001, Buenos Aires, Argentine, July 2001, 15 hours.
- "3D Games technology: Real time rendering and Character Animation", PhD. Alan Watt, ECI2001 Buenos Aires, Argentine, July 2001, 15 hours.
- "Programming with Logic", IFIP WG 2.3 Seminar and School, Tandil, Argentine, 6-13 September 2000.
- "Boolean Calculus, from the Complexity Theory to Question-Based Learning", PhD. José Luis Balcázar, ECI2000, Buenos Aires, Argentine, July 2000, 18 hours.

14 Other Activities

- **November 2011** Co-organizer together with Lic. Pedro Pury of the Extension Course "Android Bootcamp 101 Córdoba 2011", by Lic. Gonzalo Buteler, Lic. Andres Pagliano, Analista Pablo Perez De Angelis, FaMAF, UNC.
- **From October 2009 to September 2013** Member of the Undergraduate Council, FaMAF, UNC.
- **August 2009** Organizer of the Extension Course "Developing a WiFi driver for the Linux Kernel", by Christoph Hellwig, FaMAF, UNC.
- **From March 2008 to May 2010** Advisory Commission member, Computer Science Career, FaMAF, UNC.
- **April 2005**, FONTAR Program Evaluator, National Agency of Scientific and Technology Promotion, Argentine.
- **April 2004**, Student volunteer in LATIN 2004, Buenos Aires, Argentine.
- **November 2002** Side Expert in the Revoke Process of Major Germán Kammerath, City of Córdoba, Argentine.
- **From June 2001 to August 2006** Advisory Commission member, Computer Science Career, FaMAF, UNC.

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