

Tomás Barros

Sto. Domingo 760 dept. 173, Santiago, Chile • tbarros@gmail.com • +56 2 664 36 22

Information Technology Specialist

Proficient IT specialist with strong technical knowledge in computer systems, networks, data security, formal methods and experience in security critical systems conception and development, as well as qualified manager with a successful track of coordinating and executing international innovation projects.

Core Competences

-Network & Systems Security	-Security Systems Design	-Research & Development
-Formal Methods	-Skilful Negotiator	-Multilingual

Technical Proficiencies

Platforms:	Linux (Red Hat, Debian), Solaris, BSD (FreeBSD), Mac OS X
Networking:	TCP, IPv4 and IPv6, Ethernet, Wi-Fi, Client/Server (sockets). Distributed (RMI, RPC) and Asynchronous (ProActive, messaging base) Programming. DNS, NFS, Samba, SSH, HTTP, FTP, POP3, IMAP4, SMTP.
Languages:	Shell Scripting, C, Java, JavaScript, Perl, PHP.
Data security:	Asymmetric and Symmetric Cryptography, SSL, Digital Certificates (X509), Hashing Functions.
Formal verification:	Process Algebra (FC2, LOTOS), Model-checking (SMV, SPIN)

Professional Experience

2002/2005	Institute National de Recherche en Informatique et en Automatique (France) <i>PhD candidate</i> <ul style="list-style-type: none">• Thesis on applying formal methods for the automatic verification of distributed component systems.• Analysis of the state of the art, identify the requirements, propose and justify solutions, development of prototypes and testing on real cases.
2002	NIC Chile. (Administrator of the “.cl” domain) <i>Software engineer</i> <ul style="list-style-type: none">• Conception and development of libraries for the implementation of the Chilean electronic invoices standard in the NIC invoicing process. Currently in implementation stage with more than 100.000 invoices successfully emitted.
2002/2001	Servicio de Impuestos Internos de Chile (Chilean Tax Revenue Agency) <i>External advisor</i> <ul style="list-style-type: none">• Consulting on the conceptual design of the cryptographic security aspects and the format of the new system of electronic invoices in Chile resulting in the currently adopted model.• Created and managed presentations to promote the benefits of the previously defined technical approach within the national authorities.

- Participated in coordination meetings with the eight companies involved in the first national level pilot implementation
- Nationwide operation achieved. Currently 2 millions invoices per month in average (202 enterprises incorporated), generating savings of about 80% in the invoicing process.

- 2001** **Security and Applied Cryptographic Laboratory at the University of Chile**
Founder
- Founder and member of the committee in charge of defining the main policies for the laboratory. Definition of the initial equipment requirements.
 - Computer services deployment.
 - In charge of security alarms for the Chilean system administrator community.
- 2000** **Optimisa S.A** (A software development company)
Software engineer
- Security protocol conception and implementation of the Chilean system for payment using credit cards via Internet. Currently on production.
 - Conception of the BackOffice: a distributed system based on messaging (using IBM MQSeries).
- 2000/1999** **AccessNova** (Applied Research and Technology Transfer Program at the Univ. of Chile)
Research assistant
- Managed a technology innovation project for the remote control of air condition system via Internet, developed for United Technologies Research Center (USA).
 - Coordination during 1 year, US\$ 140.000 budget, 3 development students 2 senior PhD advisors.
 - Data security implementation.
 - Presentation of results at United Technologies Research Center headquarters.
- 1999/1998** **Nippon Telegraph and Telephone Corporation (NTT), R&D labs. In Tokyo, Japan.**
Student internship
- Security evaluation of a virtual LAN system in development.
 - Analysis of IP version 6.

Education

PhD IN COMPUTER SCIENCE

2005 INRIA – Sophia Antipolis, France

ENGINEER IN COMPUTER SCIENCE¹

2002 UNIVERSITY OF CHILE- Santiago, Chile

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

2000 UNIVERSITY OF CHILE- Santiago, Chile

Academic Activities

- 2003** Student in the Summer School on programming for PhD Students (Aussois, France).
- 2002** Student in the CIMPA School on distributed systems (Mérida, Venezuela).
- 2000** Teaching Assistant of Programming Introduction at the Engineering School, University of Chile.
- 2001** Teaching Assistant of Human Resources and Organisational Behaviour at the Engineering School, University of Chile.

¹ Ingeniería Civil en Computación, 6 university years, equivalent to Master of Science in Computer Science.

2000 Teaching Assistant of Data Security at the Engineering School, University of Chile.
1999/1998 Research internship at the Waseda University, Tokyo, Japan.

Publications

- T. Barros: Formal Specification and Verification of Distributed Component System. PhD Thesis, Nice University, France. November 2005
- T. Barros, L. Henrio, E. Madelaine. Verification of distributed hierarchical components. In International Workshop on Formal Aspects of Component Software (FACS'05), Macao, October 2005. Electronic Notes in Theoretical Computer Science (ENTCS).
- T. Barros, L. Henrio, E. Madelaine. Behavioural Models for Hierarchical Components. SPIN 05 (LNCS 3639, Springer Verlag).
- I. Attali, T. Barros, E. Madelaine. Parameterized Specification and Verification of the Chilean Electronic Invoices System. XXIV International Conference of the Chilean Computer Sciences Society, Arica, Chile (IEEE proceedings). Nov 2004.
- T. Barros, R. Boulifa, E. Madelaine: Parameterized Models for Distributed Java Objects, International Conference on Formal Techniques for Networked and Distributed System – FORTE (LNCS 3235, Spinger Verlag). Madrid, Sep. 2004.
- T. Barros, E. Madelaine: Formalisation and Verification of the Chilean electronic invoice system, INRIA Research Report RR-5217, June 2004.
- T. Barros, E. Madelaine: Formal Description and Analysis for Distributed Systems, Integrated Formal Methods (Doctoral Symposium), Kent, UK. April 2004.
- T. Barros: Documentos Tributarios Electrónicos. Engineer Thesis, University of Chile. August 2002
- T. Barros, A. Junge, G. Lama, J. Piquer, E. Vera. Distributed System for Remote Control and Monitoring Technologies Integration, IV Workshop en Paralelismo y Sistemas Distribuídos, University of Santiago, Chile. November 2000.
- T. Barros, C. Collao, K. Morikawa, N. Yamauchi, R. Arenas, J. M. Piquer, P. Pax, E. Vera, R. Baeza-Yates, M. Matsumoto, H. Tominaga. Long Distance MBONE Experiments between Japan and Chile, IEEE Workshop on Networked Appliances (IWNA'98), Kyoto, Japan, November 4-6, 1998

Others

- Languages: Spanish, native tongue; English and French, fluent
- 2002, Award to the best engineer thesis of the year from the Chilean Institute of Engineers
- 2003-2004, Student delegate at the PhD student supervision commission, INRIA Sophia Antipolis, France.
- 1996, Delegate in the Student Union of the University of Chile
- 1995, Delegate in the Student Union of the Engineering School at the University of Chile
- Hobbies: play piano, listen classic music and jazz, ski.