

# Ivan Victor Krsul

## Home Address

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## Education

- May 1994 - May 1998** Purdue University, West Lafayette, Indiana.  
Doctoral Degree in Computer Science.  
*Ph.D. Thesis:* Software Vulnerability Analysis.  
*Academic Advisor:* Professor Eugene Spafford
- Aug. 1992 - May 1994** Purdue University, West Lafayette, Indiana.  
Masters Degree in Computer Science (May 1994).  
*Masters Thesis:* Authorship Analysis: Identifying the Author of a Program.  
*Academic Advisor:* Professor Eugene Spafford
- Jan. 1985 - May 1989** The Catholic University of America, Washington D.C.  
Bachelor of Science in Computer Engineering, (May 1989).  
Graduated Magna Cum Laude.

## Awards and Honors

- United Nations Public Service Award in the category of Improvement of Public Service Results, 2002. Awarded to the Bolivian Customs Service for implementing institutional reforms, including, among others, important changes in technology. The PRISMA project that I headed was a cornerstone of this reform process.
- Member of Sigma Xi, the Scientific Research Society. July, 1998.
- Recipient of the SERC *Maurice Halstead Award In Software Engineering*. Presented for Outstanding Contributions to Software Engineering Research at Purdue University. May, 1998.
- Recipient of the SERC *Maurice Halstead Award In Software Engineering*. Presented for Outstanding Contributions to Software Engineering Research at Purdue University. April, 1996.
- Recipient of the *Best Student Paper* award at the 18th National Information Systems Security Conference. Baltimore, Maryland. October, 1995.
- Member of Upsilon Pi Epsilon. Computer Science Honor Society.
- Member of Tau Beta Pi, Engineering Honor Society.
- Deans List 6 Semesters at Catholic University, Washington D.C.

## Areas of Interest

- Computer Security
- Software Vulnerability Analysis
- Institutional Reform
- Software Engineering
- Networking
- Grid Computing
- Software Development
- Impact of Technology on Society
- Distributed Computing

## Experience

- Feb. 2005 – present** – **Founder and General Manager, Artexacta S.R.L. La Paz, Bolivia.** Founder and general manager of Artexacta, a consulting company that specializes in software engineering processes and software development.
- Jan. 2004 – Feb. 2005** – **Director/Manager of Software Research and Development, Innova Empresarial SRL. La Paz, Bolivia.** Manage the software research and development area of Innova Empresarial, SRL. The business specializes in consulting and software development for microfinance institutions.
- Jul. 2002 – May-2004** – **Visiting Assistant Professor. Department of Electrical and Computer Engineering, University of Florida.** Involved in research in computational grids with emphasis on security and architecture. Involved in the development of the In-VIGO system at the ACIS laboratory.
- Mar. 2002 – Jul. 2002** – **Post-doctoral research associate. ACIS Laboratory, Department of Electrical and Computer Engineering, University of Florida.** Involved in the development of the Netcare (NETwork-computer for Computer Architecture Research and Education) system at the ACIS laboratory, as well as research in distributed and grid computing. Duties involved teaching a portion of a distributed computing course (EEL 6935 - Distributed Computing).
- Mar. 2000 - Dec. 2001** – **Director of the PRISMA project. Bolivian National Customs Agency, La Paz, Bolivia.** Director of a systems modernization project for the implementation of a nation-wide computer system for customs control (ASYCUDA++). The project was funded by the IDB, World Bank, Government of Japan and Nordic Development Fund and included the creation of a nation-wide network for 40 customs sites, reform of systems management implementing the Capability Maturity Model (CMM) as a basis for quality control, and the overall improvement of the systems infrastructure for the institution.
- Apr. 1999 - Feb. 2000** – **Consultant. Institutional Reform Project. Vice-presidency of Bolivia, La Paz, Bolivia.** Long term consultant for the Institutional Reform Project in the design and evaluation of computer systems for institutional reform projects, including national purchasing systems, national administration of personnel, etc.
- Aug. 1993 - May 1998** – **Research Assistant. The COAST Laboratory. Department of Computer Sciences, Purdue University, West Lafayette, Indiana.** Active involvement in computer security research with an emphasis on software forensics, intrusion detection, vulnerability databases, network security, and cryptographic protocols.
- May 1996 - Aug. 1996** – **Intern. Xerox PARC, Palo Alto, California.** Hired as a summer intern for performing research on computer security issues dealing with the incremental deployment of trusted printers.
- May 1995 - Aug. 1995** – **Intern. Xerox PARC, Palo Alto, California.** Hired as a summer intern for performing research on computer security issues dealing with digital documents and electronic payment mechanisms.
- Aug. 1991 - Aug. 1992** – **Systems Development Manager. Industrial Technology Co., La Paz, Bolivia.** Supervise and coordinate programming and computer consulting projects for IBM and Macintosh computers.
- Aug. 1991 - Aug. 1992** – **Director of Research and Development. Ars Logicae, La Paz, Bolivia.** Cofounder of Ars Logicae. Software development for Macintosh Computers and private consulting and auditing.
- Jun. 1989 - Jan. 1990** – **National Consultant. Ministerio de Planeamiento y Coordinación (Ministry of Planning), La Paz, Bolivia.** Long term consultant for the development, installation and user training of a national information system on public investment for the Ministry of Planning.
- Jan. 1990 - Aug. 1990** – **Systems Analyst. Fondo de Inversión Social, La Paz, Bolivia.** Responsible for the design and implementation of the project management and statistics analysis systems for the Social Investment Fund.
- Jul. 1988 - Jul. 1989** – **Assistant Programmer. The Catholic University of America, Department of Electrical Engineering.** Design and development of a database system for a program to structure the design of low level processing systems

- Jul. 1988 - Apr. 1989** - **Programmer. The Catholic University of America School of Arts and Sciences.** Design and development of a database system for the use of the Administration of the School of Arts and Science of the Catholic University.
- Sept. 1985 - Dec. 1988** - **Programming Assistant. The Catholic University of America, Computer Center, Washington, D.C.** Supervision and monitoring of the University computer center operation. Preventive maintenance and control of equipment. User assistance on software and system usage

## Short-term Consulting Experience

- Jan. 2008 – May 2008** – **Consultant. CAINCO. Santa Cruz, Bolivia.** Consultant for the implementation of Security Survivability Tactics and Basic Software Development Processes.
- Aug. 2007 – Dec. 2007** – **Consultant. CAINCO. Santa Cruz, Bolivia,** Consultant for the development and monitoring of a Quality Assurance strategy for the electronic commerce solutions offered by the e-CAINCO group,
- Feb. 2006 – Apr. 2006** – **Intermediate Project Evaluation. International Development Bank (IDB). Santa Cruz, Bolivia.** Medium-term evaluation for the program "Programa de Desarrollo de Oportunidades de Comercio Electrónico para las PyMEs de Santa Cruz", funded by the IDB.
- Sept. 2005** – **Consultant. CAINCO. Santa Cruz, Bolivia.** Consultant for the development of workshops and tutorials on management information systems and strategic management systems.
- Feb. 2003** – **Consultant. World Bank, Tegucigalpa, Honduras.** Consultant with the World Bank LCR sector unit for an evaluation mission for the Corte Suprema de Justicia, Tegucigalpa, Honduras.
- Nov. 1998 - Dec. 1998** – **Consultant. Superintendencia de Recursos Jerárquicos del Sistema de Regulación Financiera (SIREFI), La Paz, Bolivia.** Consultant for the design of a smart data base system for legal documents.
- Sept. 1998 - Dec. 1998** – **Consultant. Municipal Government (Honorable Alcaldía Municipal). La Paz, Bolivia.** Consultant services for the creation of the management information systems of the municipality of La Paz.
- Feb. 1997 - Mar. 1997** – **International Consultant. Fondo Participativo de Inversión Social (FOPAR), Secretaría de Desarrollo Social, Argentina.** Consultant on a World Bank project as a facilitator for the first InterRED Social workshop in Roatán, Honduras. The project resulted in the design of the terms of reference for the InterRED Social project.
- Dec. 1995 - Jun. 1996** – **Consultant. Municipal Government (Honorable Alcaldía Municipal), La Paz, Bolivia.** Provided consulting services for the assessment of the quality of software systems at the municipality of La Paz.
- May 1991 - Jul. 1991** – **International Consultant. Social Impact Amelioration Programme (SIMAP) Agency, Georgetown, Guyana. Fonds DAssistance Economique et Sociale (Social and Economic Fund), Port-au-Prince, Haiti.** Consultant on a World Bank mission, for the evaluation and supervision of the management information systems.

## Teaching Experience

- Jul. 2002 – May-2004** – **Visiting Assistant Professor. Department of Electrical and Computer Engineering, University of Florida.** Assistant Professor for graduate level courses in distributed systems.
- Jan. 2000 – Dic. 2001** – **Visiting Profesor. Universidad Católica Boliviana, Maestrías para el Desarrollo, La Paz, Bolivia.** Professor in the graduate school of management, auditing and finances for a course on Management Information Systems.
- Aug. 1998 - Dic. 1999** – **Professor. Universidad Católica Boliviana, La Paz, Bolivia.** Professor in the School of Computer Sciences (Carrera de Ingeniería de Sistemas) responsible for teaching a computer networks course and supervising students in the process of writing a thesis.
- Jun. 1996** – **Instructor. Business Center, La Paz, Bolivia.** Taught two week long course that focused on business opportunities on the Internet and on Computer Security for the UNIX operating System.
- Dec. 1995** – **Instructor. Business Center, La Paz, Bolivia.** Taught a week long course that focused on business opportunities on the Internet.

- Jan. 1993 - Dec. 1993** - **Teaching Assistant. Purdue University, West Lafayette, Indiana.** Teaching Assistant and grader for an undergraduate software engineering course, a graduate level course on data bases and a graduate level course on data communications and computer networks.
- May 1992 - Aug. 1992** - **Instructor. Universidad Mayor de San Andres, Carrera de Informática, La Paz, Bolivia.** Taught a senior level class at the University of San Andres on compiler design.
- Nov. 1989** - **Instructor. InfoComp, La Paz, Bolivia.** Taught a C programming course and the use of the Apple Macintosh Toolbox
- Aug. 1986 - Apr. 1989** - **Tutor. The Catholic University of America Counseling Center, Washington, D.C.** Tutoring in Assembly, Basic, Pascal, Computer Graphics and FORTRAN.
- Jun. 1988 - Jul. 1988** - **Instructor. Centro Nacional de Computación (CENACO), La Paz, Bolivia.** Taught a 60 hour course on C programming.

## Publications

### Journal Articles

- From Virtualized Resources to Virtual Computing Grids: The In-VIGO System. Adabala, Sumalatha , Chadha, Vineet; Chawla, Puneet; Figueiredo, Renato; Fortes, Jose; **Krsul, Ivan**; Matsunaga, Andrea; Tsugawa, Mauricio; Zhang, Jian; Zhao, Ming; Zhu, Liping; Zhu, Xiaomin In Future Generation Computer Systems, 04/2004.
- Software Development in Antagonistic and Dynamic Operational Environments: Experiences and Best Practices for System Development Components in Reform and Modernization Projects, **Ivan Krsul** and Jaime Mendoza. Submitted for publication: ACM Transactions on Software Engineering and Methodology.
- Authorship Analysis: Identifying The Author of a Program. **Ivan Krsul**, and Eugene Spafford. Computers and Security, Volume 16, Number 3. Pages 233-248. 1997.
- Analysis of a Denial of Service Attack on TCP. Christoph L. Schuba, **Ivan V. Krsul**, Eugene H. Spafford, Diego Zamboni. Submitted for publication: IEEE/ACM Transactions on Networking.

### Conference Papers

- VMPlants: Providing and Managing Virtual Machine Execution Environments for Grid Computing. **Krsul, Ivan V.**, Ganguly, Arijit; Zhang, Jian; Fortes, Jose; Figueiredo, Renato In Proceedings of Supercomputing 2004.
- Enabling Transnational Collection, Notification, and Sharing of Information V. Cavalli-Sforza, A. I. Antón, O. Brooks, J. Carbonell, R. Cole, R. Connolly, J. Fortes, M. Herrera, **I. Krsul**, C. McSweeney, C. Ortega, S. Su, D. Towsley, J. Ventura and W. Ward. To Appear: The 2003 National Conference on Digital Government Research, 2003.
- Software Development in Antagonistic and Dynamic Operational Environments: Experiences with Digital Governments. **Ivan Krsul**, Symposium on Requirements Engineering for Information Security (SREIS) 2002, October 15-16, 2002, Raleigh, North Carolina.
- A Classification of Software Vulnerabilities That Result From Incorrect Environmental Assumptions. **Ivan Krsul** and Eugene Spafford; Keynote Presentation in DISC98 (Individual Accountability), México City, Mexico, 1998.
- Use of a Taxonomy of Security Faults, Taimur Aslam, **Ivan Krsul**, Eugene Spafford. In Proceedings of the 19th National Information Systems Security Conference. Pages 551-560. Baltimore, MD, October 1996.
- Analysis of a Denial of Service Attack on TCP. Christoph L. Schuba, **Ivan V. Krsul**, Markus G. Kuhn, Eugene H. Spafford, Aurobindo Sundaram, Diego Zamboni. In Proceedings IEEE Symposium on Security and Privacy 1997, Oakland, CA.
- Authorship Analysis: Identifying The Author Of A Program. **Ivan Krsul**, and Eugene Spafford. In Proceedings of the 18th National Information Systems Security Conference. Pages 514-525. Baltimore, MD, October 1995. This paper was given the *Best Student Paper Award*.

### Technical Reports

- COAST Vulnerability Database User's Manual. **Ivan Krsul**; Department of Computer Sciences, Purdue University; COAST TR 98-08; 1998.
- Software Vulnerability Analysis. **Ivan Krsul**; Department of Computer Sciences, Purdue University; Ph.D. Thesis; COAST TR 98-09; 1998.
- Computer Vulnerability Analysis, **Ivan Krsul**, Eugene Spafford and Mahesh Tripunitara, Purdue University, COAST TR 98-07; 1998.
- A New Approach to the Specification of General Computer Security Policies. **Ivan Krsul**, Eugene H. Spafford, and Tugkan Tuglular. COAST TR 97-13; 1997
- IDIOT - Users Guide. Mark Crosbie, Bryn Dole, Todd Ellis, **Ivan Krsul**, Eugene H. Spafford. Technical Report, CSD-TR-96-050. Purdue University, West Lafayette, IN 47907. September 1996.
- A Secure Message Broadcast System (SMBS), Mark Crosbie, **Ivan Krsul**, Steve Lodin, Eugene H. Spafford. Technical Report, CSD-TR-96-019. Purdue University, West Lafayette, IN 47907. April 1996.

#### **Other Publications**

- Newspaper articles in "La Razón", La Paz, Bolivia, dealing with technology and its impact on Bolivia and other developing nations. 1997-1998.

#### **Patents**

- "SYNKILL: Analysis of a Denial of Service Attack", Christopher L. Schuba, Diego Zamboni, Eugene H. Spafford, Aurobindo Madras Sundaram, Markus G. Kuhn, Ivan Krsul. Patent number P-97028.00. US.
- Method on Electronic Payment that Prevents Double-Spending. Ivan V. Krsul, Craig J. Mudge y Alan J. Demers. Patent number 5,839,119. November 1998.

#### **Other Activities**

- Photography exhibition at the Nota Art Gallery, La Paz, Bolivia, June 1999.
- Photography exhibition at the Nota Art Gallery, La Paz, Bolivia, May 2005.

#### **Languages Spoken**

- Fluent in English and Spanish