Résumé

Name: Néstor Ruben Barraza

Date of Birth: May 10th, 1962

Address: Chaco 250, Buenos Aires, Argentina

Nationality: Argentine

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FIELDS OF INTEREST

Computer Systems, Software Engineering, Software Reliability, Information Theory, Communications, Applied Probability, Statistical analysis, Reliability, Signal and Image processing, Statistical Mechanics.

EDUCATION.

Electrical Engineer (1993), Ph.D. (1998) Engineering, Dissertation:
"*Applications and Analysis of Cooperative Phenomena using Statistical Mechanics, Contagion and Chains of Rare Events*", School of Engineering, University of Buenos Aires, Buenos Aires, Argentina.

SCIENTIFIC ACTIVITIES.

Research in Probability Theory and its Applications, Software and Hardware Reliability, Information Theory and Coding.

POSITION HELD IN ARGENTINA:

- National University of Tres de Febrero. Full Professor.
- School of Engineering of the University of Buenos Aires: Associate Professor

TEACHING/ADVISING ACTIVITIES.

A. Teaching/Research Positions

20013 – up to the present. Full Professor at Universidad Nacional de Tres de Febrero, subject: Probability and Statistics, Stochastic Processes. Research on Software Reliability and Software Quality, Estimation Methods.

2019 - up to the present. Associate Professor at School of Engineering, University of Buenos Aires. Subject: Teaching and Research on Information Theory and Coding.

2008 – 2019. Assistant Professor at School of Engineering, University of Buenos Aires. Subject: Teaching and Research on Information Theory and Coding.

2001-2008 Assistant Professor in Signals and Systems. School of Engineering, University of Buenos Aires.

1998- 2001. Assistant Professor in Neural Networks and Signal Processing. School of Engineering, University of Buenos Aires.

1996-1998: Graduate Assistant in Image and Signal Processing. School of Engineering, University of Buenos Aires.

1993-1996: Graduate Assistant in Neural Networks and Image Processing courses. Graduate Assistant in Physics. School of Engineering, University of Buenos Aires.

1990-1993 : Student Assistant in Physics, Department of Physics. School of Engineering, University of Buenos Aires.

1989-1991 : Student Assistant, Department of Electrical Engineering. School of Engineering, University of Buenos Aires.

B. Teaching Accomplishments

2013. Upgrade of the Information Theory and Coding Syllabus.

2013. Member of the Computer Systems Program Committee

2003 up to the present. Course on “Probabilistic Analysis and Applications of Interaction Models” for Ph.D. students. School of Engineering, University of Buenos Aires.

C. Advising / Student Support

2003. Member, doctoral committee. School of Engineering, University of Buenos Aires.

Since 2004. Advisor for Ph. D. students. School of Engineering, University of Buenos Aires.

MEMBERSHIP IN SCIENTIFIC SOCIETIES.

Since 1991. Institute of Electrical and Electronics Engineers (IEEE).
2006-up to the present. American Statistical Association (First year as guest)

FOREING LANGUAGES

English, Italian.

GRANTS

2013, 2015. Grants from the University of Tres de Febrero for research on Software Reliability modeling and Software Quality.

1998-1999. Thalmman Grant from the University of Buenos Aires to work in the Scuola Normale Superiore, Pisa, and in the International Centre for Theoretical Physics, Trieste, both in Italy.

1993. Peruilh scholarship from the School of Engineering of the University of Buenos Aires, to finish the Ph.D.

INTERNATIONAL CONFERENCES AND WORKSHOPS

2018. IEEE 7th INTERNATIONAL CONFERENCE on Reliability, Infocom Technologies and Optimization (ICRITO'2018). Aug. 29-31. Noida, India. Invited speaker.

2017. International Conference on Software Quality, Reliability and Security, QRS 2017. 25-29 July, Prague Czek Republic.

2016 38th International Conference on Software Engineering Austin, TX, May 14 - 22, 2016, http://2016.icse.cs.txstate.edu/.

2015 . International Conference on Soft Computing and Software Engineering [SCSE'15]. Berkeley CA. USA. March 5-6, 2016.

Fourth Pan American Congress of Applied Mechanics. PACAM IV. Buenos Aires, Sep. 1995.

IEEE 1995 Int. Conf. on Systems, Man and Cybernetics, Vancouver, Canada, Oct. 1995.

"Workshop on Condensed Matter Physics: Classical and Quantum Liquids", "International Centre for Theoretical Physics" (ICTP), Trieste, Italy. Aug. 1995.

LOCAL CONFERENCES AND WORKSHOPS

- 2016. 11th Argentinian Symposium on Software Engineering. ASSE. Buenos Aires. Argentina.

- 2014. 15th Argentinian Symposium on Software Engineering. ASSE. Buenos Aires. Argentina.

- 2010. 11th Argentinian Symposium on Software Engineering. ASSE. Buenos Aires. Argentina.

- 2007. 12th Conference on Information Processing and Control. Rio Gallegos. Argentina.
- 2003. 10th Conference on Information Processing and Control. San Nicolás. Argentina.

- 1997. 7th. Conference on Information Processing and Control. San Juan. Argentina.

- 1995. 6th. Conference on Information Processing and Control. Bahia Blanca. Argentina.

- 1992. 77th. National Conference on Physics. Buenos Aires.

- 1990. 75th. National Conference on Physics. La Plata. Argentina.

- 1989. 3rd.Conference on Information Processing and Control. La Plata. Argentina.

- 1989. 74th. National Conference on Physics. San Luis. Argentina.

- 1988. Winter Mathematical workshop. Mendoza. Argentina.

SCIENTIFIC ACTIVITIES IN FOREIGN UNIVERSITIES AND INSTITUTES

1999. Visiting Professor at the International Centre for Theoretical Physics ICTP, trieste, Italy.

1999. Visiting Professor at the Scuola Normale Superiore, Pisa, Italy.

1995. Participant in the "Workshop on Condensed Matter Physics: Classical and Quantum Liquids", "International Centre for Theoretical Physics" (ICTP), Trieste, Italia. Aug. 1995.

PUBLICATIONS

1 - Nestor R. Barraza; Sergio Moro; Marcelo Ferreyra; Adolfo de la Peña. (2019) Mutual information and sensitivity analysis for feature selection in customer targeting: A comparative study. ". *JOURNAL OF INFORMATION SCIENCE, 2019, Vol. 45(1) 53–67.*

2 - N. R. Barraza (2017) A Mixed Poisson Process and Empirical Bayes Estimation Based Software Reliability Growth Model and Simulation ". *Software Quality, Reliability and Security Companion (QRS-C), 2017 IEEE International Conference on*

3 - N. R. Barraza (2017) Mining Bugzilla datasets with new increasing failure rate software reliability models ". *Computer Conference (CLEI), 2017 XLIII Latin American*

4 - MARIANO IGLESIAS, NESTOR R. BARRAZA. A Logaritmic Burst Channel Performance Analysis and Simulation. Argentina. Mar del Plata. 2017. Libro. Artículo Completo. Congreso. XVII Reuniones en Procesamiento de la Información y Control.

5 - N. R. Barraza, Mining bugzilla datasets with new increasing failure rate software reliability models, in: XLIII Latin American Computing Conference, CLEI 2017, Cordoba, Argentina, September 4-8, 2017. URL http://www.clei2017-46jaiio.sadio.org.ar/sites/default/files/Mem/SLISW/slisw-04.pdf

6 - NESTOR R. BARRAZA. A mixed poisson process and empirical bayes estimation based software reliability growth model and simulation. Estados Unidos de América. Piscataway. 2017. IEEE International Conference on Software Quallity, Reliability and Secu- rity (QRS2017).

7 - NESTOR R. BARRAZA. A new Pure Birth Process based Software Reliability Model. USA. New York. 2016. The 38th International Conference on Software Engineering Austin, TX, May 14 - 22, 2016. ACM

8 - NESTOR R. BARRAZA. Software Reliability modeled on Contagion. USA. New York. 2016. The 27th International Symposium on Software Reliability Engineering, Otawa, Canada. IEEE

9 - N. R. Barraza (2015) A Parametric Empirical Bayes Model to Predict Software Reliability Growth ". Procedia Computer Science, Vol. 62 pp. 360-369.

10 - JUAN CAMILO SALAZAR RIPOLL; NÉSTOR R. BARRAZA. A new Algorithm to construct LDPC codes with large stopping sets. Argentina. Río Negro. 2013. Libro. Artículo Completo. Congreso. XV Reuniones en Procesamiento de la Información y Control. Universidad de Río Negro

11 - NESTOR R. BARRAZA. Performance of the Viterbi Algorithm on a Polya Channel. Argentina. Río Negro. 2013. Libro. Artículo Completo. Congreso. XV Reuniones en Procesamiento de la Información y Control.

12 - N. R. Barraza (2013). " Parameter Estimation for the Compound Poisson Software Reliability Model, ". *International Journal of Software Engineering and its Applications. IJSEIA Vol. 7, No.1, 2013.*

13 – "The Empirical Bayes Estimator and Mixed Distributions", N. R. Barraza, *28th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering.*Sau Pablo, Brasil, July 2008..

14 – "Maximum Likelihood Decoding on a Communication Channel", C. Caiafa, N. R. Barraza, A. Protto, *Annals of the 12th Conference on Information Processing and Control ,* Rio Gallegos, Argentina, Oct. 2007.

15 – “A new estimators family of n-grams in coarsening models”, Spanish. J. P. Piantanida, N. R. Barraza, C. F. Estienne, *Annals of the 10th Conference on Information Processing and Control, San Nicolas, Argentina,* Oct. 2003.

16 - ``An Application of the Chains-of-Rare-Events Model to Software Development Failure Prediction'', Néstor R. Barraza, Jonas D. Pfefferman, Bruno Cernuschi-Frías, and Félix Cernuschi. Proceedings of the "5th Ada-Europe International Conference on Reliable Software Technologies", Ada-Europe 2000, Potsdam, Germany, June 26-30, 2000. Also in "Reliable Software Technologies, ADA-Europe 2000", Hubert B. Keller, Erhard Plodereder (Eds.), ISBN 3-540-67669-4, Springer-Verlag, 2000, Lecture Notes in Computer Science, Vol. 1845, pp. 185-195.

17 - ``An Urn Model Distribution and Its Connection with the Truncated Poisson Distribution'', Bruno Cernuschi Frías, Hernán J. González, Néstor R. Barraza, y Félix Cernuschi. Proceedings of the "1999 SIAM Annual Meeting", SIAM, Society for Industrial and Applied Mathematics, Atlanta, Georgia, USA, May 1999, p. 140.

18 – “A Limiting Case for a Two States Markov Chain”, N. R. Barraza*, International Workshop on Markov Processes and Controlled Markov Chains*, Changsha, Hunan, China, Aug. 22-28, 1999.

19– “Vacancies in quantal Wigner crystals near melting”, N. R. Barraza, L. Colletti and M. P. Tosi, *Solid State Communications*, 112 (5) (1999) pp. 261-264. Also in ICTP (International Centre for Theoretical Physics) preprint No. IC99037.

20– “Applications and Analysis in Cooperative Phenomena using Statistical Mechanics, Contagion , and Rare Events Chains”, Ph.D. Thesis. School of Engineering of the University of Buenos Aires. Sep. 1998.

21 - “Analysis of Contagion Models and their Asymptotic Distributions”, N. R. Barraza, B. Cernuschi-Frías, F. Cernuschi, *Annals of the 7th Conference on Information Processing and Control ,* San Juan, Argentina, Vol. 1, pp. 64-69, Sep. 1997.

22 - “Simulation Study of the Angular Dependence of Spatial Correlation Functions in Liquids using Smoothing Filters”, H. J. González, B. Cernuschi-Frías, N. R. Barraza,. F. Cernuschi,
Molecular Physics, **91**, 1, pp. 91-97, 1997.

23 - " Applications & Extensions of the Chains-of-Rare-Events", N. R. Barraza, B. Cernuschi-Frías, F. Cernuschi, *IEEE Transactions on Reliability*, **45**, 3, pp. 417-421, 1996.

24 - "A Probabilistic Model for Grouped Events Analysis", N. R. Barraza, B. Cernuschi-Frías, F. Cernuschi, *Proceedings of The 1995 IEEE International Conference on Systems, Man and Cybernetics*, Vol. 4, pp. 3386-3390, Vancouver, Canada, Octubre 1995.

25 - "A Generalization of the Chains of Rare Events Model and its Applications", N. R. Barraza, B. Cernuschi-Frías and F. Cernuschi. *Latin American Applied Research*, **25 / S**, pp. 67-70, Nov. 1995.

26 - "A Theoretical Derivation of the Sublimation and Melting Equilibrium Curves for Inert Gases", F. Cernuschi, N. R. Barraza and B. Cernuschi-Frías. (Monograph, non published).

27 - “Low Frequency Motions in Liquids: Study by Computer Simulations”, por H. Gonzalez, B. Cernuschi-Frías, N. Barraza y Félix Cernuschi. *Proceedings of the Fourth Pan American Congress of Applied Mechanics*. PACAM IV. Buenos Aires, Argentina, Enero 1995.

28 – “Chains of Rare Events Model applied to Software Reliability”, Spanish. Néstor R. Barraza, B. Cernuschi-Frías y Félix Cernuschi. *Anales de la Academia de Ciencias Exactas, Físicas y Naturales*, Vol. 46, pp. 105-111, 1994.

29- “Local Order and Diffusive Motions in Simple Liquids”. Hernán J. González, B. Cernuschi-Frías, Néstor R. Barraza y Félix Cernuschi. *The Journal of Chemical Physics*. **102**, No. 7, Feb. 1995.

30 – “Short Range Structure in Simple Liquids”. Spanish. Hernán J. González, Néstor R. Barraza, B. Cernuschi-Frías y Félix Cernuschi. *Anales de la Academia de Ciencias Exactas, Físicas y Naturales. Anales de la Academia Nacional de Ciencias Exactas, Físicas y Naturales*, vol. Nº 45. 1993.

31 – “Application of Markov Chains in the Ising Model". Spanish. Néstor R. Barraza, B. Cernuschi-Frías y Félix Cernuschi*. Anales de la Academia de Ciencias Exactas, Físicas y Naturales,* vol. Nº 45. 1993.

32 – “Computer Simulations of Liquids”. Spanish. Hernán J. González, Néstor R. Barraza, B. Cernuschi-Frías y Félix Cernuschi. *Anales de la Academia de Ciencias Exactas, Físicas y Naturales. Anales de la Academia Nacional de Ciencias Exactas, Físicas y Naturales*, vol. Nº 44. 1992.

33 – "Theory on the non-existence of the critical point in the solid-liquid transition". Félix Cernuschi, Néstor R. Barraza. *Anales de la Academia Nacional de Ciencias Exactas, Físicas y Naturales*, vol. Nº 43. 1991.

34 – “Theoretical derivation of the Sublimation curve and Triple Point", Spanish. *Anales de la Academia Nacional de Ciencias Exactas, Físicas y Naturales*, vol. Nº 41. 1989.

AWARDS

1993, 1994, 1995. Scientific and Technological Award from the University of Buenos Aires.

1996-1997. A brief sketch of the biography has been published in *Marquis Who’s Who in the World,* 13th y 14th edition, and *Dictionary of International Biography* published by International Biographical Centre, Cambridge, England.

PROFESSIONAL ACTIVITIES

BOLDT S.A. 2006-2012. Software engineer. Analysis, design, development and maintenance of online transactional client-server systems. Consultant on communications, software upgrades, tuning and software analysis.

BOLDT S.A. 2003-2005. Software engineer. Analysis, design and development of an online transactional client-server system. This system runs under Linux (RedHat) and Postgresql. Programming using Linux tools (sockets, IPC, shared memories, etc.), and postgresql tools (libpq, Ecpg). The communications stage is managed by a Cisco NAS using X25 and E1 protocols. Test of CISCO 3745 as dialin and dialout connected through a PBX.

BOLDT S.A. 2001-2002. Software engineer. Analysis, design and development of a communications Front-End using TCP/IP and X25 protocols. Design of a high level protocol. Performance analysis of CISCO communication equipment. Programming under Linux using TCP/IP communication structures. C programming under OpenVMS using TCP/IP and X25. Analysis, design, development and implementation of a client-server transactional on-line scheme under Linux.

BOLDT S. A., 1998-2001. Software Engineer. Software development in a client-server scheme, in ALPHA 800 and ALPHA DS20, Open VMS 7.2-1. Installation, Configuration and Tuning. Most of the programs are in C language. Analysis and design. C Language programming using VMS system services for X25 communications in order to analyze performance, benchmark and tuning.

BOLDT S. A. 1994-1997. System Manager and System Programmer in DIGITAL microVAX 3100-10, microVAX 3100-80 and ALPHA 800, Open VMS 6.2 and Open VMS 7.1. Installation, Configuration and Tuning. Programming using VMS System Services. Software network installation, configuration and tuning, TCP/IP, X25 and DECNET protocols. Software packages DECNET OSI, DECNET-PLUS, TCPWARE, UCX, PSI. Software development in C and Fortran in a client-server scheme, protocols TCP/IP and X25.

SOFTWARE DE JUEGOS S. A. 1993-1994. Fortran 88 programming in microVAX 9000 for statistical analysis of data structures.

BOLDT S.A. 1991-1993. Adaptation of complex printing system from PDP 11-44 to microVAX 3100 in a VMS 5.4.2 environment. Programs were developed in FORTRAN 88. System Manager of an Ethernet network compound of: microVAX 3100 with VMS, microVAX II with ULTRIX 4.1 using TCP/IP, two Emulex servers, and PC's using DECNET-DOS. This system had a X25 line. Software development in C language on PC's. System Manager of Novell network.

AYDIN Corp. 1989-1991. Software development of a database system. This system was integrated as a network solving transactions involving movement, reporting of failures, fixing and deposit of several tools, also human and economic resources. Programs were made in C language and System Services using events flag, in a microVAX II, using VMS 5.1. Also Oracle 6.0 and FMS (Forms Management Services).

SPECIFIC TECHNICAL SKILLS

Operating Systems

VMS (15 years), Linux (5 years), QNX (1 year)

Programming Languages

C (15 years), C++ (Basic knowledge), Fortran (8 years).

Network Programming

IPC (Interprocess communication), Shared Memory, Threads, Sockets, Interrupts, Client-server schemes

Protocols

TCP/IP, X25, Ethernet.

Databases

Oracle (1 year, old version), Postgresql (5 years).

Equipment configuration and setting up

Cisco 5300 Series and 3745 NAS, for communications under X25 and E1/T1 standards.