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EDUCATION

2006-2009   **Master of Science in Mineral Economics.** Curtin University of Technology. Perth, Australia.

2003-2005   **Master in Business Administration**, (Fundación del Tucumán-University of Norte Santo Tomás de Aquino-University Católica of Valparaíso, Chile), San Miguel de Tucumán, Tucumán, Argentina. Resolution N°538-CONEAU-04.

2004   **Diploma in Applied Geostatistics**, intensive training, 160 hours. Universidad de Chile. Mining Engineering Department. Professors: Dr. Xavier, Emery and Ph. D. Julián Ortiz.

1990-1996   **Bachelor of Science (Licentiate) in Geology**, Universidad Nacional de La Pampa, Argentina. **Thesis**: Stratigraphic in Carbonic-Permian. Universidad Nacional de La Pampa. Regional Geology in the Province of Mendoza, Argentina.

PROFESSIONAL

AusIMM Member # 227922.

CIM Membership # 151726.

WORK EXPERIENCE

Nov-Dic 2016   **Haile Gold Mine.** (Oceanagold corporation).USA. Review and optimization of grade control system (Protocols and Procedures)

Jul 2016   **Instituto Técnico Superior de Ingeniero Jacobacci-Present**. **Rio Negro, Argentina. Associate professor** in the subjects "Informatic-Geostatistic

applied" and "Mineral deposits" of Senior Technician in mining operations.

Oct 2015	**Minerals and Metals Group (MMG Limited). Perú.** Audit Long-Term Mineral Resources Model 2015. Filed reviews, database, geologic modeling, resource estimation under NI43-101 and JORC guidelines and prescriptions.
Feb 2014	**Compañia Minera Zafranal. Perú**. Audit of the Resources Model 2012. Solids Models 3D Minzones, Lithology and Alteration. Support EDA & resources estimation model 2013 under NI 43-101 guidelines and CIMM.
Dec 2013	**Antapaccay, Glencore Xstrata PLC. Perú.** Audit of the Resource Model 2012.
Jul 2013-Feb 2014	**BHP, BHPB Pampa Norte**. **Cerro Colorado y Spence. Chile.** Review and optimization of grade control system.
Jun 2013	**Amara Mining, PLC. Yaoure Gold Project**. Ivory Coast. Resource Model Update 2013 under NI 43-101 and CIMM guidelines.
Dec 2013	**Compañía Minera Antamina S.A. Perú.** Review and optimization of grade control system. Resources Model audit, Cu, Zn, Bi, Fe, and others.
Dec 2011	**Cuprum Resources Corp, Puquios.** Chile. Partial Review of the database, EDA and geological model for Total and Soluble Copper.
Feb 2011	**Compañía Minera Doña Inés de Collahuasi (CMDIC. Chile.** Partial review and audit of Geotechnical old database. Review and updated "geotechnical Data Entry", administered by AcQuire software. Geotechnical (PLT, O.K.) model, Rosario Oeste. Pyrite model RW, R y Ujina (O.K.) . Review and optimization of grade control system, R.
Aug 2010	**Cobre del Mayo, S.A. de C.V., Piedras Verdes. México.** Development of a grade control system using Ordinary Kriging and MineSight software; MultiRun packages and IP cut designs. Produced and updated a 43-101-compliant Cu resource model.
Jul 2010	**Compañía Minera Teck Quebrada Blanca S.A., Chile.**

Review of an AcQuire-administered database software and grade control system.

Jun 2010	**TVI PACIFIC INC. Balabag Gold Project-Present. Philippines.** Updated resources model and technical report according to NI 43-101 and CIMM guidelines.
Mar 2010	**Western Lithium Corporation. King's Valley Project, Reno, USA.** Review of geologic modeling, and QA/QC. Also, development of resource estimates for Li, K, Na and F, according to NI 43-101 and CIMM guidelines.
Dec 2009	**University National of San Luis. Assistant lecturer (present)** in the subject Exploration and Resource Evaluations. School of Mines Engineering. Argentina.
Jul 2009	**Minera Alumbrera L.T.D. (Xstrata Copper)-present. BED Project (Bajo El Durazno), Catamarca, Argentina.** Audit and review of drilling practices, geologic modeling, and QA/QC. Also, resource model estimate of CuT (total copper) and Au (gold), resource classification according to the JORC code and Technical Report.
Jan 2009	**Boddington Gold Mine (Newmont Asia and Anglogold Ashanti, W. Australia, January 2009).** Audit of a gold DBSim conditional simulation model. Review of the discrepancies between the conditional simulation model and the UC resource model. Review of the application of the DBSim to mine scheduling.
Dec 2009	**Jinshan Gold Mines, CSH Gold Mine, Inner Mongolia, China (November 2008).** Update of the gold resource model; Au grade estimation, resource classification and validations.
Nov 2008-Mar 2009	**Filo del Sol Project (Suramina and Lundin Mining, Vancouver and San Juan, Argentina, November 2008-Marzo 2009).** Review of exploration campaign and development of a 43-101 compliant resource model for Au & Cu and Report.
Nov 2008-Dec 2008	**Jinshan Gold Mines, Dadiangou Project, China (November 2008-present).** Initial review of drilling practices, geologic modeling, QA/QC. Produced and updated a 43-101-compliant Au resource model.

Feb 2008-Nov 2008   **Minera Alumbrera L.T.D. (Xstrata Copper),** Catamarca Province, Argentine. Copper-Gold Porphyry system. **Project Geologist.** (Geological and block modeling).

June 2007-Jan 2008   **Ernest Henry Mining Pty Ltd (Xstrata Copper), Cloncurry, Queensland, Australia.** Copper-Gold-Iron Oxide Hydrothermal breccia system. **Support in Geological and block modeling for underground phase prefeasibility.** Annual resources and reserves signed, by code JORC. Mine Technical Services Department.

2002-June 2007   **Minera Alumbrera L.T.D. (Xstrata Copper),** Catamarca Province, Argentine. Copper-Gold Porphyry system. **Project Geologist.** (Geological and block modeling, supported by Gary Raymond and Luis Rivera): grade control, probe and reserves-resource definition drilling; provision of daily ore mining and grade control functions, including void definition; maintenance of the Acquire (manager) grade control, exploration, geotechnical , database; optimizing the open pit reserve through the accurate delineation of ore and waste; provision of periodic production and reconciliation reports; continuing to develop, implement and refine the grade control .
    Mine Geologist, bench mapping (Structural, lithology and alteration).
    Technical Support in Peru, Project Las Bambas, Database (acquire software) and block modeling.

2001-April 2002   **Minera El Desquite, Leleque Exploración S.A**., Chubut Province, Argentine. Contract geologist in exploration of Projects (Esquel deposit Project and Joya del Sol Project, epithermal low sulphidation quartz-adulary-bitumen rich) and regional (Sierra Lonco Trapial, Sierra del Cerro Negro, Lag. Salada, Epuyén). RC logging, DD and RC control.. Detection of target anomaly by rock chip, float, stream sediment, bleg sampling , pan concentrate and aerial reconnaissance (airplane-helicopter). Software Application (ArcView Gis 3.2).

1999- 2001   **Normandy Mining Argentine S.A.**. Staff geologist. Trench and channel sampling, BLEG and soil sampling, core logging, regional prospect scale mapping (Lipetren zone, Rio Negro, Argentina). Data base construction control and statistic evaluation, solids construction and reserves evaluation, supported by NCL Ingenieria y Construcción S. A., Santiago de Chile. Advanced Application of associated softwares (GEMCOM for Windows, Mappinfo Professional Version 6.0, Datadesk 6.0, Surfer 7.02,

Autocad 14, Excel, Word and others softwares associated to Microsoft office 2000).

1998- 1999 **La Source Developement Argentine-Normandy Mining Argentine S.A.** Contract geologist in regional exploration geology. Rio Negro (Calcatreu Project, epithermal low sulphidation quartz-adulary-calcite Veins). Detection of target anomaly by rock chip and stream sediment sampling. BLEG sampling, channel and trench sampling and regional-detailed mapping, core logging, RC and DD control.

1997-1998 **La Source Developpement Argentine.** Contract geologist in regional exploration geology. Chubut Province (Cordon de Taquetren,Esquel y Leleque, Sierra Colorada, El Maiten, Los Camarones, Chenque, Hondo valley). The work included stream and rock sampling, BLEG sampling and regional mapping).

April-June 1997 **Geoservices S.A.**, Neuquén, Argentina.Training Geologist in oil exploration.

1992-1995 **University National of La Pampa** .Assistant lecturer in the subject vertebrate and invertebrate paleontology.

PUBLICATIONS

Jun 2014 XIX CONGRESO GEOLOGICO ARGENTINO. The Basis Risk of Model Recoverable Resources. Authors: Bruna Novillo J., Bassan J., Rossi M.

Aug 2010 ARGENTINA MINING 2010. The Board of Control as a Management Tool in Model Recoverable Resources. Authors: Bruna Novillo J., Bassan J., Rossi M.

Aug 2009 XVI SIMPOSIUM DE INGENIERIA EN MINAS. 18-21 August, Santiago de Chile, Chile. The basis of the recoverable resources model. Authors: J. Bruna Novillo, J. Bassan, M. Rossi.

Aug 2008 III INTERNATIONAL CONFERENCE ON MINING INNOVATION 6-8 August, Santiago, Chile. Mineral Control System in Bajo de La Alumbrera Mine, Catamarca, Argentina. Authors: Rodolfo Zapata, José Antonio

Bassan and Julio Bruna

May 2006	II INTERNATIONAL CONFERENCE ON MINING INNOVATION 23-26 May, Santiago, Chile. Presentation: "Geothecnical characterization and the Modeling of its Variables", in Mina Bajo de La Alumbrera, Catamarca, Argentina". Authors: Carlos Giraud, José Bassan and Julio Bruna.
September 2005	VIII CONGRESO ARGENTINO DE GEOLOGIA ECONOMICA 15&16&17. Presentation: "Ore Control System in Mina Bajo de La Alumbrera, Catamarca, Argentina". Authors: I. Zapata, J. A. Bassan, J. Bruna Novillo
March 2005	ACQUIRE REGIONAL CONFERENCE 14&15. Presentation: "Uso de Acquire en los procesos de Minera Alumbrera". Authors: José A. Bassan and Julio Bruna Novillo. Santiago de Chile, Chile
1993	First Meeting of Ichnology, Argentina. Association of fossil Plans of the Facies Pelitic Formation Agua Escondida (Up carboniferous ?), Sud-East of Mendoza, Argentina., Summary:15. Santa Rosa, La Pampa, Argentina. Authors: Melchor, R.N., Bassan, J.A. y Fernandez, M.A.

OTHER EXPERIENCE

March 2017	UBA (University of Buenos Aires). Argentina. Jury doctoral Thesis. "Modelo Geológico 3D y Metalogénico del Depósito Estratoligado de Cu y Ag León, Cuenca del Grupo Salta, Provincia de Salta, Argentina. Its implication in the geostatistical analysis for the estimation of its mining resources ". Doctoral thesis Geologist Hector Santiago Salomón Sanchez Rioja.
September 2011	MAPTEK COMPUTACION CHILE Ltd. .Training in software VULCAN tools, version 8.1.2, Resources Estimation. September 26-27-28-29. Manuel Espinoza Instructor. Viña del Mar, Chile.
May 2011	LEAPFROG MINING SOFTWARE. Leapfrog Fundamentals Training, version Leapfrog 2.4, May 23-24-25. Dulce Madrid Instructor. Santiago de Chile, Chile.

March 2010	MINESIGHT GEOSTATISTICS ADVANCED TRAINING. March 24-25-26. Abdullah Arik Instructor. MINTEC, Santiago de Chile. Chile
March 2008	APPLIED MINING GEOSTATISTICS. March 26-28 2008. Universidad Nacional de San Luis, Department of Mining, Argentina. Professor: MSc Mario E. Rossi.
April 2005	MINESIGHT 22nd Annual Seminar and Training MSDA Geostatistics version 3-50, 24 hours. Tucson, Arizona, USA
March 2004	MINTEC, Santiago de Chile, Chile, Training MineSight for Modelers-Geostatistics, 45 hours.
May 2003	MINTEC, Santiago de Chile, Chile, Training Software "Acquire", 24 hours.
March 2003	AEROTERRA S.A., Minera Alumbrera LTD., Catamarca, Argentina, Training Software "Erdas Imagine avanced", 40 hours.
March 2003	INGEROC, Minera Alumbrera LTD, Catamarca, Argentina, Training in "Stability of benches", 50 hours.
September 2002	MINTEC, Santiago de Chile, Chile, Training Software MineSight Operations 3d.
July 2000	PLI(Pacific Language Institute), Vancouver, Canada. English language Course.
1998-2000	Chubut and Rio Negro, Argentina. Dr. Nigel Radford, Normandy Group. Course and training BLEG sampling.
December 1999	GEMCOM, Santiago de Chile. Training, Software Gemcom for Windows.
August 1997	BRGM, Orleans, France. Training, Software GDM for Window.