Curriculum Vitae

J. Cristian Salgado H.
Ph.D in Chemical Engineering
Assistant Professor, Department of Chemical Engineering and Biotechnology, University of Chile, Tupper 2007, Santiago Chile

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Professional goal: "To apply cutting edge mathematical and computational techniques to develop a strong understanding of the underlying rules that govern complex productive and biological systems".

Strengths: "Adaptability, initiative, creativity and team work skills, facility to assimilate and to use cutting edge technologies efficiently. Availability to travel".

Research interests: "Mathematical modeling, computational modeling, industrial processes, process control, computational biology, bioinformatics, information technologies".

17 publications in international journals, ISI, with peer review.

Academic Background

2005 : **Ph.D in Chemical Engineering**, University of Chile, under the supervision of Dr. Juan A. Asenjo and Dr. Iván Rapaport. Thesis "Prediction of the Behaviour of Proteins in Hydrophobic Interaction Chromatography", which produced 6 papers in international scientific journals, ISI, with peer review and high impact factors.

2002 : **Chemical Engineering Professional Degree**, *Summa Cum Laude*, University of Chile. Thesis "Conceptual design of a system for the prediction of the degree of accessibility to the solvent of globular proteins".

1996 : **B.S. in Chemical Engineering**, with honour, University of Chile.

Projects

2012 - 2015 : **Co-Researcher for FONDECYT Research grant 1120280** "Searching for possible deprotonation sites for substrates and inhibitors of human MAO-A".
2008 - 2011 : **Principal Researcher for FONDECYT Research Initiation grant 11080016** "Mathematical modeling of the interaction between cell-penetrating TIR BB loop decoy peptides (BBPs) and toll-like receptor 4 and 2 (TLR4 and TLR2)".
2007 - 2011 : **Young Researcher for MIDEPLAN Millennium Institute grant Nº ICM P-05-001-F** "Institute for Cell Dynamics and Biotechnology: A Centre for Systems Biology"
2007 - 2008 : **Principal Researcher for FONDECYT Postdoct grant Nº 3070031** "Prediction of the partitioning behaviour of proteins in aqueous two-phase systems using their three dimensional structure or their amino acid composition" which produced 3 papers in international scientific journals, ISI, with peer review and high impact factors.

Working Experience

2007 - …   :   Assistant Professor, Department of Chemical Engineering and Biotechnology, University of Chile.

2007   :   Chilean node representative for the European Molecular Biology Network (EMBNET), at the meeting in Torremolinos, Spain.

2006   :   Postdoc at the Centre for Biochemical Engineering and Biotechnology. Project: Prediction of the Partitioning Behaviour of Proteins in Aqueous Two-Phase Systems using their Three Dimensional Structure or their Amino Acid Composition.

2006 - …   :   Research assistant for FONDEF project Nº D04I1374 "Research, Development and Production of Comercial Cryophilic Proteases and Lipases from Antartic Krill and Bacteria".

2002 -   :   Research assistant for FONDEF project Nº D01I1031 " Research,
2005   Development and Production of Comercial Cryophilic Proteases and Lipases from Marine Source".

2003 -   :   Systems administrator for the Millennium Institute for Advance
2006   Studies in Cell Biology and Biotechnology: Administration, configuration and maintenance of the cluster of computers for scientific calculations.

2003   :   Chilean node representative for the European Molecular Biology Network (EMBNET), at the meeting in Warsaw, Poland.

1996   :   Research assistant for FONTEC project 95-0574 "Design of systems of Air enrichment with oxygen for sewage treatment plants": system schematics, mathematical modelling.

1995   :   Database designer and administrative assistant for Unilever Chile.

Computational Skills

- Mathematical modelling of systems using of non traditional models such as neural networks or genetic algorithms.
- Molecular modeling and simulation suites: AutoDock, NAMD, Modeller, etc
- Mathematical suites: Maple, Matlab, Scilab, etc.
- Programming languages Perl, Python, Java, C, Matlab, and Unix/Linux CLI-scripting, Latex.
- Structured and Object oriented programming (OOP).
- Design applications: Autocad version 10 and up, in addition to specific design tools in Chemical Engineering and Biotechnology (e.g. Super Pro Design).

- Design and implementation of client/server systems, distributed calculation systems and clusters of computers for scientific calculation.
- Systems administrator UNIX (Linux, Irix), Mac OSX, Windows.
- Office suites.

Teaching Experience

Dynamics and Process Control	:	Fall 2007, spring 2007, fall 2008, spring 2008, spring 2009, spring 2010, spring 2011, spring 2012.
Mathematical Methods in Chemical Engineering	:	Fall 2007, fall 2008, fall 2009, fall 2010, fall 2011, fall 2012.
Mathematical Methods in Process Engineering	:	Fall 2010, fall 2011, fall 2012.
Bioinformatics	:	Spring 2007.
Chemistry	:	Spring 2008, spring 2009, spring 2010, spring 2011, spring 2012.
Process Analysis	:	Fall 2008.

Student formation

Undergraduate

2012	:	Director of thesis "Search and characterization of possible deprotonation sites on Monoamine oxidase A" by Pilar Fernández, University of Chile, Chile
2012	:	Director of thesis "Mathematical modeling of copper's homeostasis in bacteria" by Waldo Aracena, University of Chile, Chile
2011	:	Director of thesis "Ethical dilemmas in Chemical Engineering" by Richard Martinez, University of Chile, Chile
2011	:	Director of thesis "Protein-peptide docking of toll-like receptors and cell-penetrating TIR BB loop decoy peptides (BBPs)" by Camilo Patiño, University of Chile, Chile.
2011	:	Director of thesis "Protein-protein docking of toll-like receptors" by Eduardo Rossel, University of Chile, Chile.
2011	:	Director of thesis "Optimization of the production and control for a malt extract production plant" by Andrés Bozzo, University of Chile, Chile.
2011	:	Director of thesis "Technical and economic pre-evaluation of the use of special malts on the production of beer" by Nicolás Mardones, University of Chile, Chile.
2010	:	Director of thesis "Study of the transport mechanism used by

BPP/TLR4 molecules in THP-1 and epithelial cells" by Karen Flores, University of Chile, Chile.

2009	:	Director of thesis "Dynamic modeling and inference of the protein interactions network of the NMDA-R receptors" by Jaime Campos Valenzuela. University of Chile, Chile.
2008	:	Director of thesis "Prediction of the partition coefficient of proteins in Aqueous two-phase systems using solvatation energy and hydrophobicity" by Nimia Riveros. University of Chile, Chile.
2007	:	Director of thesis "Prediction of the partition coefficient of proteins in Aqueous two-phase systems using a bioinformatic characterization of the protein surface" by María Paz Cortés. University of Chile, Chile.

Graduate

2012	:	Director of master thesis "Mathematical modeling of iron's homeostasis in human Caco2 cells" by Daniel Morales. University of Chile, Chile.
2010	:	Director of master thesis "Design and simulation of a control system for complex bioreactor" by Damián Baeza. University of Chile, Chile.
2010	:	Co-advisor of master thesis "Improvement of enzyme's thermostability by using molecular dynamics" by Javier Jofré. University of Chile, Chile.
2007	:	Director of master thesis "Use of clustering studies to improve the prediction of protein behavior in hydrophobic interaction chromatography and aqueous two-phase system" by Jorge Ugarte. University of Chile, Chile.

Publications

International Journals (ISI with peer review)

Z.P. Gerdtzen., J.C. Salgado, F. Zuñiga, B.A. Andrews, J.A. Asenjo, *A Metabolic Model for the Optimization of Adenoviral Vector Production*, In preparation.

J. Campos, Z.P. Gerdtzen, J.C. Salgado, *A systemic model for the receptor complex NRC/MASC based on its inferred interproteic network*, being submitted to IET Systems Biology.

2012

G. Zapata-Torres, A. Fierro-Huerta, S. Miranda-Rojas, C. Guajardo, P. Saez-Briones, J.C. Salgado, C. Celis-Barros, *Influence of Protonation on Substrate and Inhibitor Interactions at the Active Site of Human Monoamine Oxidase-A*, Journal of Chemical Information and Modeling, 52(5) (2012) 1213-1221

K. Flores-Olave, <u>J.C. Salgado</u>, G. Zapata-Torres, M.J. Gonzalez, M.A. Hermoso, *Effect of the electrostatic potential on the internalization mechanism of cell penetrating peptides,* Journal of Biotechnology, 17(3) (2012) 485-499.

M.E. Lienqueo, A. Mahn, <u>J.C. Salgado</u>, C. Shene, *Mathematical Modeling of Chromatographic Elution Curves*, being submitted Chemical Engineering & Technology, 35 (2012) 46.

2010

<u>J.C. Salgado</u> , A. Olivera,, Z.P. Gerdtzen , V. Tapia , C. Conca , M.T. Nunez, *Mathematical Modeling of the Dynamic Storage of Iron in Ferritin*, BMC Systems Biology Journal, 4 (2010) 147.

M.E. Lienqueo, C.Shene, A. Quiroz, O.Salazar, <u>J.C. Salgado</u>, J.A. Asenjo, *Experimental validation of mathematical model predictions for the selection of optimal polypeptide tags to assist the purification of recombinant proteins*, Journal of Separations and Purification Technology, 45 (2010) 2153.

2009

Z.P. Gerdtzen, <u>J.C. Salgado</u>, A. Osses, J.A. Asenjo, I. Rapaport, B.A. Andrews, *Modeling heterocyst pattern fomation in cyanobacteria*, BMC Bioinformatics, 10 (2009) (Suppl 6) S16.

A. Mahn, M.E. Lienqueo, <u>J.C. Salgado</u>, *Methods of calculating protein hydrophobicity and their application in developing correlations to predict hydrophobic interaction chromatography retention*, Journal of Chromatography A, 1216 (2009) 1838.

M.E. Lienqueo, <u>J.C. Salgado</u>, O. Giaverini, J.A. Asenjo, *Computer-aided design to select optimal polypeptide tags to assist the purification of recombinant proteins*, Journal of Separations and Purification Technology, 65 (2009) 86.

2008

<u>J.C. Salgado</u>, B.A. Andrews, M.F. Ortuzar, J.A. Asenjo, *Prediction of partition coefficient of proteins in aqueous two-phase systems using only their amino acid composition,* Journal of Chromatography A, 1178 (2008) 134-144.

2007

M.E. Lienqueo, A. Mahn, <u>J.C. Salgado</u>, J.A. Asenjo, *Current insights on the protein behaviour on hydrophobic interaction chromatography,* Journal of Chromatography B, 849 (1-2) (2007) 53-68.

2006

M.E. Lienqueo, A. Mahn, G. Navarro, T.Perez-Acle, <u>J.C. Salgado</u>, I. Rapaport, J.A. Asenjo, *New approaches for predicting protein retention time in hydrophobic interaction chromatography,* Journal of Molecular Recognition., 19 (2006) 260-269.

<u>J.C. Salgado</u>, I. Rapaport, J.A. Asenjo, *Predicting the behaviour of proteins in hydrophobic interaction chromatography 2. Using a statistical description of their surface amino acid distribution,* Journal of Chromatography A, 1107 (2006) 120-129.

<u>J.C. Salgado</u>, I. Rapaport, J.A. Asenjo, *Predicting the behaviour of proteins in hydrophobic interaction chromatography 1: Using the hydrophobic imbalance (HI) to describe their surface amino acid distribution,* Journal of Chromatography A, 1107 (2006) 110-119.

2005

J.C. Salgado, I. Rapaport, J.A. Asenjo, *Prediction of retention times of proteins in hydrophobic interaction chromatography using only their amino acid composition,* Journal of Chromatography A, 1098 (2005) 44–54.

J.C. Salgado, I. Rapaport, J.A. Asenjo, *Is it possible to predict the average surface hydrophobicity of a protein using only its amino acid composition?,* Journal of Chromatography A, 1075 (2005) 133–143.

2004

Zapata-Torres G, Opazo F, Salgado C, Munoz JP, Krautwurst H, Mascayano C, Sepulveda-Boza S, Maccioni RB, Cassels BK., *Effects of natural flavones and flavonols on the kinase activity of Cdk5 ,* Journal of Natural Products, 67(3) (2004) 416-420.

1999

M.E. Lienqueo, J.C. Salgado, and J.A. Asenjo, *An Expert System for selection of Protein Purification Processes: Experimental Validation*, Journal of Chemical Technology & Biotechnology, 74(3) (1999) 293-299.

Proceedings

2011

K. Flores-Olave, J.C. Salgado, G. Zapata-Torres, M.J. Gonzalez, M.A. Hermoso, *Effect of the electrostatic potential on the internalization mechanism of cell penetrating peptides,* Proceedings of the 2011 Annual Meeting of the American Institute of Chemical Engineers, 623ar. (NonISI)

J.C. Salgado , A. Olivera, Z.P. Gerdtzen, V. Tapia, C. Conca, M.T. Nunez, *A kinetic model for the storage of iron in ferritin*, Proceedings of the 2011 Annual Meeting of the American Institute of Chemical Engineers, 623z. (NonISI)

J.A. Campos, Z.P. Gerdtzen, J.C. Salgado, *A systemic model for the receptor complex NRC/MASC based on its inferred interproteic network,* Proceedings of the 2011 Annual Meeting of the American Institute of Chemical Engineers, 623bg. (NonISI)

D. Baeza, J.C. Salgado, Z.P. Gerdtzen, *Model based control for metabolic shift regulation in mammalian cells*, Proceedings of the 2011 Annual Meeting of the American Institute of Chemical Engineers, 764g. (NonISI)

D. Baeza, J.C. Salgado, Z.P. Gerdtzen, *Design and simulation of a controller system for metabolic shift regulation in mammalian cells*, BMC Proceedings, 5(Supp8) (2011) p11. (NonISI)

2010

T. Vargas, M. Colet and J.C. Salgado, *A Novel Mathematical Model for the Study of Electrochemical Nucleation of Metals on Foreign Substrates from the Analysis of Potentiostatic Current-Transients*, ECS Transactions. 28 (6) (2010) 155-163. (NonISI)

2009

J.C. Salgado , A. Olivera,, Z.P. Gerdtzen , V. Tapia , C. Conca , M.T. Nunez, *Mathematical Modeling of the Dynamic Storage of Iron in Ferritin*, Biological Research 42 supp A (2009) 15. (ISI)

2007

Contador, C., Gerdtzen, Z. P., Salgado, J. C., & Andrews, B. A., 2007, *Study of the dynamic effect of cholesterol lowering drugs using a mathematical model*, Proceedings of the second Conference Foundations of Systems Biology in Engineering (FOSBE2007): 237-242. (NonISI)

Conferences

2012

R. Martinez, A. Monares, J.C. Salgado, *Dilemas éticos en Ingeniería Química*, XXV CONGRESO CHILENO DE EDUCACIÓN EN INGENIERÍA "La Oferta de las Universidades frente a las Demandas Futuras de Ingenieros", Antofagasta – Chile, October 10 – October 12, 2012. (Oral presentation)

2011

D. Baeza, J.C. Salgado, Z.P. Gerdtzen, *Model based control for metabolic shift regulation in mammalian cells*, 11 AIChE Annual Meeting. (AIChE 2011), Minneapolis, USA, October 16 – October 21, 2011. (Oral presentation)

K. Flores-Olave, J.C. Salgado, G. Zapata-Torres, M.J. Gonzalez, M.A. Hermoso, *Effect of the electrostatic potential on the internalization mechanism of cell penetrating peptides,* 11 AIChE Annual Meeting. (AIChE 2011), Minneapolis, USA, October 16 – October 21, 2011. (Poster)

J.C. Salgado, A. Olivera, Z.P. Gerdtzen , V. Tapia, E.C Theil, C. Conca , M.T. Nunez, *A kinetic model for the storage of iron in ferritin*, AIChE Annual Meeting. (AIChE 2011), Minneapolis, USA, October 16 – October 21, 2011. (Poster)

J.A. Campos, Z.P. Gerdtzen, J.C. Salgado, *A systemic model for the receptor complex NRC/MASC based on its inferred interproteic network,* 11 AIChE Annual Meeting. (AIChE 2011), Minneapolis, USA, October 16 – October 21, 2011. (Poster)

D. Baeza, J.C. Salgado, Z.P. Gerdtzen, *Design and simulation of a controller system for metabolic shift regulation in mammalian cells*, European Society for Animal Cell Culture 22nd Meeting (ESACT2011), Vienna, Austria, May 15 – May 18, 2011. (Poster)

2010

J.A. Campos, Z.P. Gerdtzen, J.C. Salgado, *A systemic model for the receptor complex NRC/MASC based on its inferred interproteic network*, 1st International Conference on Bioinformatics SOIBIO, Sociedad Iberoamericana de Bioinformática, Chillán, Chile, September 26 – September 28, 2010. (Oral presentation).

D. Baeza, J.C. Salgado, Z.P. Gerdtzen, *Design and simulation of a controller system for metabolic shift regulation in mammalian cells*, 1st International Conference on Bioinformatics SOIBIO, Sociedad Iberoamericana de Bioinformática, Chillán, Chile, September 26 – September 28, 2010. (Poster).

J.C. Salgado, A. Olivera, Z.P. Gerdtzen, V. Tapia, E.C. Theil, C. Conca, M.T. Nunez, *A systems biology approach to study of the dynamics of iron storage in ferritin*, 1st International Conference on

Bioinformatics SOIBIO, Sociedad Iberoamericana de Bioinformática, Chillán, Chile, September 26 – September 28, 2010. (Poster).

T. Vargas, M. Colet, J. C. Salgado, *A Novel Mathematical Model for the Study of Electrochemical Nucleation of Metals on Foreign Substrates from the Analysis of Potentiostatic Current-Transients*, ECS Electrochemistry in Mineral and Metal Processing 8 (EMMP 8), Vancouver, Canada , April 25 – 30, 2010. (Oral presentation).

2009

J.C. Salgado, A. Olivera, Z.P. Gerdtzen, V. Tapia, C. Conca, M.T. Nunez, *Mathematical Modeling of the Dynamic Storage of Iron in Ferritin*, Biological Society of Chile - LII annual reunion, Pucón, Chile, November 16 – 20, 2009 (Oral presentation).

M.E. Lienqueo, C.Shene, O.Salazar, J.C. Salgado, J.A. Asenjo, *Experimental validation of mathematical model predictions for the selection of optimal polypeptide tags to assist the purification of recombinant proteins*. International Conference on Biopartitioning and Purification (BPP2009), Brunel University, Uxbridge (London), UK, June 14 – 19, 2009 (Oral presentation).

Z. P. Gerdtzen, J.C. Salgado, B.A. Andrews, J.A. Asenjo, *A Metabolic Model for the Optimization of Adenoviral Vector Production*, 8th World Congress of Chemical Engineering (WCCE8), Montréal, Quebec,
Canada, August 23 – 27, 2009 (poster)

2008

J.C. Salgado, J.A. Asenjo, B.A. Andrews, *Is it possible to predict protein behavior in hydrophobic interaction chromatography and aqueous two-phase systems using only their amino acid composition?*, EMBnet Conference 2008: 20th Anniversary Celebration conference: "Leading applications and technologies in Bioinformatics", Martina Franca (Puglia), Italy, September 18 - 20, 2008 (Oral presentation).

J.E. Ugarte, B.A. Andrews, J.C. Salgado, *Improving the prediction of protein behavior in hydrophobic interaction chromatography and aqueous two-phase systems with clustering methods*, EMBnet Conference 2008: 20th Anniversary Celebration conference: "Leading applications and technologies in Bioinformatics", Martina Franca (Puglia), Italy, September 18 - 20, 2008 (Poster).

Z.P. Gerdtzen, J.C. Salgado, A. Osses, J.A. Asenjo, I. Rapaport, B.A. Andrews, *Modeling heterocyst pattern fomation in cyanobacteria*, EMBnet Conference 2008: 20th Anniversary Celebration conference: "Leading applications and technologies in Bioinformatics", Martina Franca (Puglia), Italy, September 18 - 20, 2008 (Poster).

J.C. Salgado, J.A. Asenjo, B.A. Andrews, *Prediction of protein behavior in hydrophobic interaction chromatography and aqueous two-phase system using only their amino acid composition*, RIB2008, 5th annual RIB (Red Iberoamericana de Bioinformática) conference, Santiago, Chile, October 15 – 17, 2008 (Poster).

J.E. Ugarte, B.A. Andrews, J.C. Salgado, *Use of clustering studies to improve the prediction of protein behavior in hydrophobic interaction chromatography and aqueous two-phase system*, RIB2008, 5th annual RIB (Red Iberoamericana de Bioinformática) conference, Santiago, Chile, October 15 – 17, 2008 (Poster).

Z.P. Gerdtzen, J.C. Salgado, A. Osses, J.A. Asenjo, I. Rapaport, B.A. Andrews, *Modeling heterocyst pattern fomation in cyanobacteria*, RIB2008, 5th annual RIB (Red Iberoamericana de Bioinformática) conference, Santiago, Chile, October 15 – 17, 2008 (Oral presentation)

2007

J.C. Salgado, J.A. Asenjo, B.A. Andrews, *Prediction of the partition behaviour of proteins in aqueous two-phase systems using only their amino acid composition*, International Conference on Biopartitioning and Purification (BPP2007), Portugal, Lisboa, June 17 - 20, 2007 (Poster and oral presentation).

M.E. Lienqueo, J.C. Salgado, O. Giaverini, J.A. Asenjo, *How to select optimal polypeptide tags to assist the purification of recombinant proteins*, International Conference on Biopartitioning and Purification (BPP2007), Lisboa, Portugal, June 17 - 20, 2007 (Poster).

J.C. Salgado, I. Rapaport, J.A. Asenjo, *Is it possible to predict the retention times of proteins in HIC using only their amino acid composition?*, International Conference on Biopartitioning and Purification (BPP2007), Lisboa, Portugal, June 17 - 20, 2007 (Oral presentation).

J.C. Salgado, I. Rapaport, J.A. Asenjo, *Prediction of the Behaviour of Proteins in Hydrophobic Interaction Chromatography*, Workshop on Collaborative Bioinformatics, Torremolinos, España, June 11 – 14, 2007 (Oral presentation).

C. Contador, Z.P. Gerdtzen, J.C. Salgado, B.A. Andrews, *Study of the dynamic effect of cholesterol lowering drugs using a mathematical model*, Foundations of Systems Biology in Engineering, Stuttgart, Germany, September 9 - 12, 2007 (Poster).

2006

J.C. Salgado, H. Diaz, A. Cintolesi, I. Rapaport, B.A. Andrews, J.A. Asenjo, A. Hayes, S. Oliver, *Metabolomics of Recombinant Yeast: Flux Analysis, Gene Expression and a Mathematical Model for Gene Regulation of Metabolism*, Second Latin American Bioinformatics Workshop, Buenos Aires, Argentina, December 4 and 5, 2006 (Oral presentation).

Z.P. Gerdtzen, J.C. Salgado, F. Zuñiga, B.A. Andrews, J.A. Asenjo, *A Metabolic Model for the Optimization of Adenoviral Vector Production*, United Engineering Foundation Conference, Metabolic Engineering VI, Noordwijkerhout, Netherlands, October 1-5, 2006 (Poster).

2005

J.C. Salgado, I. Rapaport, J.A. Asenjo, *Prediction of the behaviour of proteins in hydrophobic interaction chromatography using only their amino acid composition*, Bioinformatics Workshop III, Santiago, Chile, September 5 to 7, 2005 (Oral presentation).

M.E. Lienqueo, A. Mahn, J.C. Salgado, I. Rapaport, J.A. Asenjo, *Predicting protein retention time in hydrophobic interaction chromatography*, 16th Affinity, Uppsala, Sweden, October 14-18, 2005 (Oral presentation).

2003

J.C. Salgado, J.A. Asenjo, *Prediction of the Real Value of the Exposition to the Solvent of Globular Protein Amino acids*, Bioinformatics Workshop II, Santiago, Chile, October 16-17, 2003 (Oral presentation).

1999

M.E. Lienqueo, J.C. Salgado, J.A. Asenjo, *An Expert System for selection of Protein Purification Processes: Experimental Validation,* 4th International Conference on Separations in Biotechnology, University of Reading, UK, March 29-31, 1999 (Oral presentation).

1998

J.C. Salgado, M.E. Lienqueo, J.A. Asenjo, *An expert system for the Design of Protein Recovery and Purification processes: Use of intelligent graphical interfaces*, IV National congress of Biotechnology, Talca, Chile, 1998 (Poster).

M.E. Lienqueo, J.C. Salgado, J.A. Asenjo, *Optimal Selection of Multistep Protein Purification Processes using an Expert System: Selection Criteria and Validation*, 2nd European Symposium on Biochemical Engineering Science, Porto, Portugal, 1998 (Oral presentation).

M.E. Lienqueo, J.C. Salgado, J.A. Asenjo, *Design of an Expert System for Selection of Protein Purification Processes : Comparison Between Different Selection Criteria*, 7th International Conference on Computer Applications in Biotechnology - CAB7- "Horizon of BioProcess Systems Engineering in 21st Century, Cosmosquare Education and Training Center, Osaka, Japan, June, 1998 (Oral presentation).

1997

M.E. Lienqueo, J.C. Salgado, E.W. Leser, J.A. Asenjo, *An Expert System for the Selection of Multistep Protein Purification Processes*, International Conference: Biochemical Engineering X, Kananaskis, Alberta, Canada, May, 1997 (Oral presentation).

1996

J.C. Salgado, M.E. Lienqueo, J.A. Asenjo, *Design of an Expert system for the Selection and Obtaining of the Optimal Sequence of Unitary Operations in the Industry of Processes*, XII National Conference of Chemical Engineering: "Creating Clean Technologies for the Development", Technical University Federico Santa Maria, Valparaiso, Chile, 1996 (Oral presentation).

M.E. Lienqueo, J.C. Salgado, J.A. Asenjo, *Use of the Physical-Chemistry Properties of Proteins for the Design of Chromatographic Purification Processes*, XII National Conference of Chemical Engineering: "Creating Clean Technologies for the Development", Technical University Federico Santa Maria, Valparaiso, Chile, 1996.

Talks

2012

Invited Speaker, *Proteins: blocks of life*, "1000 científicos 1000 aulas" initiative, Explora, Conicyt, Santiago, Chile. School San José de Chicureo and School José Abelardo Nuñez Murua de Puente Alto, children 12-13 years old, October 2012.

2010

Invited Speaker, *Algunas reflexiones con respecto a las matemáticas en particular, la ciencia y la ingeniería en general*, ICDB: Taller de Multimedia Educativo en Ciencias, ICDB Milenium Institute, Santiago, Chile, November 2010.

Invitated Speaker, *Mathematics: The secret language of biology - Systems Biology and Molecular Modeling*, Clínica las Condes, Santiago, Chile, January 2011.

Awards and Scholarships

2005	:	Doctoral scholarship "Millennium Institute for Advance Studies in Cell Biology and Biotechnology".
1998-2001	:	Doctoral scholarship "National Commission for Scientific and Technological Research" CONICYT.
1996	:	Dean's list for outstanding academic performance, Faculty of Physical and Mathematical Sciences, University of Chile.
1995-1996	:	"President of the Republic" scholarship for outstanding academic performance.

Other Interests

- Photography: semi-professional, artistic, basic equipment, black and white laboratory, member of the Engineering Photography Club, University of Chile.
- Literature, poetry.
- Contemporary cinematography.

Working Preferences

Field	:	Academia, Research and Development, Production and Engineering, Consultancy, Information Technologies.
Position	:	Professor (tenure track), Research and development scientist.

References

Dr. Ricardo Baeza-Yates rbaeza@dcc.uchile.cl Phone: (56 - 2) 689 2736	Department of Computer Science Faculty of Physical and Mathematical Sciences University of Chile. Blanco Encalada 2120, Santiago Centro, Santiago, Chile.
Dr. Bruce Cassels bcassels@uchile.cl Phone: (56 - 2) 978 7253 (56 - 2) 271 3881	Department of Chemistry Faculty of Sciences University of Chile Las Palmeras 3425, Ñuñoa, Santiago, Chile.
Dr. Iván Rapaport irapapor@dim.uchile.cl Phone: (56 - 2) 689 4470	Department of Mathematical Engineering Faculty of Physical and Mathematical Sciences University of Chile. Blanco Encalada 2120, Santiago Centro, Santiago, Chile.
Dra. Barbara A. Andrews bandrews@ ing.uchile.cl Phone: (56 - 2) 978 4284 (56 - 2) 978 4710	Centre for Biochemical Engineering and Biotechnology. Department of Chemical Engineering and Biotechnology, University of Chile. Beauchef 861, Santiago Centro, Santiago, Chile
Dr. Juan A. Asenjo juasenjo@ing.uchile.cl Phone: (56 - 2) 978 4284 (56 - 2) 978 4723	Centre for Biochemical Engineering and Biotechnology. Department of Chemical Engineering and Biotechnology, University of Chile. Beauchef 861, Santiago Centro, Santiago, Chile.
Dr. Leandro Herrera Z. leherrer@ing.uchile.cl Phone: (56 - 2) 978 4284 (56 - 2) 978 4163	Decontamination Processes Engineering Group. Department of Chemical Engineering and Biotechnology, University of Chile. Beauchef 861, Santiago, Chile.
Dr. Gerald Zapata T. gezapata@icaro.dic.uchil e.cl Phone: (56 - 2) 978 2961	Department of Inorganic and Analytical Chemistry, Faculty of Chemical and Pharmaceutical Sciences, University of Chile. Olivos 1007, Independencia, Santiago, Chile.