Curriculum Vitae, April 2017
ALBERTO CAVAZOS GONZALEZ

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PERSONAL DETAILS

Date of Birth:	17th July, 1963.
Place of Birth:	Monterrey, N.L., México.
Sex:	Male.
Nationality:	Mexican.
Status:	Married.
CURP:	CXGA630717HNLVNL09

RESEARCH TOPICS

Industrial process control, process modeling and variable estimation by artificial intelligence.

LANGUAGES

English, Spanish, and Italian.

EDUCATION

1980-1984	BS in Control and Computers Engineering, FIME-UANL. Monterrey, N.L., Mexico.
1991-1992	MEE, Eindhoven International Institute, Eindhoven The Netherlands. Thesis: "Repetitive Control of a Compact Disc Player", Philips Research Laboratories.
1992-1996	PhD (Control Engineering), The University of Sheffield; UK. Thesis: "Multivariable Control of Moving Bed Processes: An Application to Strip Casting."

CURRENT POSITIONS

Professor at the Control Group of the Graduate Studies Division in Electrical Engineering, Facultad de Ingeniería Mecánica y Eléctrica de la Universidad Autónoma de Nuevo León, Av. Universidad S/N, Ciudad Universitaria, San Nicolás de los Garza N.L., MEXICO. Tel: (52 81) 8329 4020 ext 5773, e-mail: alberto.cavazosgz@uanl.edu.mx, web: die.fime.uanl.mx/pages/acgpag.html

SOCIETY MEMBERSHIP

ISA, IEEE and AIST

TEACHING

- *Robust Control* (graduate)
- *Digital Control (undergraduate and graduate*)
- *Analysis and Control of Linear Systems* (*graduate*)

THESIS SUPERVISION

- "*Artificial Intelligence Modelling of the Heat Loss Process of a Steel Plate: An Application to Hot Rolling*," PhD Thesis at CIDESI, Maximilano Méndez, 2005.
- "*Multivariable Linear Model of a Finishing Hot Strip Mill*" MS Thesis at FIME-UANL, Alma Rosa Obregón, 2006.

- "*Grain Size Estimation in Aerospace Application Ring Forging by Fuzzy Logic*" MS Thesis at FIME-UANL, Luis Toro, 2007.
- "*Entry Temperature Semiphysical Modeling of Finishing Hot Strip Mill by Neural Networks*", MS Thesis, FIME-UANL, Miguel Torres, 2008.
- *"Entry Temperature Grey-Box Modeling of Finishing Hot Strip Mill by Fuzzy Logic"*, MS Thesis, FIME-UANL, Ángel Barrios, 2008.
- *Parametric Robust Control by Quantitative Feedback Design of the Looper in a Hot strip Mill,* Edgar Rojas, MS 2012.

In Progress

- *"Endothelial tissue dynamics modelling"* PhD Thesis, FIME-UANL, Oscar Cervantes.
- *"Fuzzy Rule Generation for Temperature estimation by a Hot Strip Mill"* PhD Thesis, FIME-UANL, Ángel Barrios.
- *Parametric Robust Control by Quantitative Feedback Design of the Strip Thickness in a Hot strip Mill*, Norma Liliana Pliego Reyes, MS Thesis.

PUBLICATIONS

- Barrios J.A., Villanueva C., **Cavazos A**. and Colás R., "Fuzzy C-Means Rule Generation for Fuzzy Entry Temperature Prediction in a Hot Strip Mill", Journal of Iron and Steel Research, International, 2016, 23 (2), 116-123.
- Barrios-Gómez J.A., Méndez G.M. y **Cavazos-González A.**, "Aplicación de Modelos de Caja Gris Neuro-Difusus con Aprendizaje Híbrido para Predicción de Temperatura en Laminado en Caliente", Dyna Ingeniería e Industria, 2016, 91 (1), 16-17.
- Don Juan Ríos O.A., Rojas Lugo E.A. y **Cavazos González A.**, "*Control Robusto Paramétrico QFT del Formador de Onda en un Molino de Laminación en Caliente*", CIENCIA *ergo-sum*, 2016, 23 (1), 35-48.
- Barrios-Gómez J.A., Méndez G.M. y **Cavazos-González A.**, "Entry Temperature Estimation in a Hot Strip Mill by Hybrid Learning Type-1 and Type-2 Fuzzy Grey-Box Models" Dyna New Technologies, 2015, 2, 1-12.
- Barrios J.A., Torres-Alvarado M., **Cavazos A., "***Neural, Fuzzy and Grey-Box Modelling for Entry Temperature Prediction in a Hot Strip Mill*", Expert Systems with Applications, 2012, 39, 3374-3384.
- Barrios J.A., Torres-Alvarado M., **Cavazos A.** and Leduc L. "*Neural and Neural Gray-Box Modeling for Entry Temperature Prediction in a Hot Strip Mill*", Journal of Materials Engineering and Performance, 2011, 20 (7), 1128-1139.
- Barrios J. A., **Cavazos A.,** Leduc L., Ramírez J., "*Fuzzy and Fuzzy Grey-Box Modelling for Entry Temperature Prediction in a Hot Strip Mill*", Materials and Manufacturing Process, 2011, 26, 1, pp. 66-77.
- Obregón A., Mendiola P., Evers K., **Cavazos A.** and Leduc L. "*Linear Multivariable Dynamic Model of a Hot Strip Finishing Mill*", Proc IMechE Part I: Journal of Systems and Control Engineering, 2010, 224, 1007-1021.
- Barrios A., Cavazos A., Leduc L., Ramírez J. "*Aplicación de algoritmos Fuzzy Cmean y Caja Gris en la predicción de temperatura en un molino de laminación en caliente*", Hierro y Acero, 2010 Vol. XI, 43, 12-20.
- GM Mendez, A. Hernandez, **A. Cavazos**, Mata-Jimenez M.T. "Type-1 Non-singleton Type-2 Takagi-Sugeno-Kang Fuzzy Logic Systems Using the Hybrid Mechanism Composed by a Kalman Type Filter and Back Propagation Methods", Lecture Notes in Computer Science, 2010, Vol. 6076, 429-437.
- Toro L., **Cavazos A**., and Colás R., "*Grain Size Estimation of Superalloy Inconel 718 After Upset Forging by a Fuzzy Inference System*" Journal of Material Engineering and Performance, 2009, Vol. 18, 9, 1183-1192.
- Geerdes W., Torres Alvarado M., Cabrera Ríos M., **Cavazos A.** "*An Application of Physics-based and Artificial Neural Network-based Hybrid Temperature Prediction Schemes in a Hot Strip Mill*", Journal of Manufacturing Science and Engineering, 2008, 130 (1), 014501.

- Barrios Gómez J. A, **Cavazos González A.**, Leduc Lezama L. A., Ramírez Cuéllar J."Sistema Semifísico Difuso Aplicado a la estimación de tempertaura en laminación en Caliente", Ingenierías, XI, 40, 2008, 5-11.
- Mendez G. M., **Cavazos A.,** Soto R., and Leduc L., **"***Entry Temperature Prediction of a Hot Htrip Mill by a Hybrid Learning TYPE-2 FLS",* Journal of Intelligent & Fuzzy Systems, 2006, 17 (6), 583-596.
- Mendez G. M., Leduc L., Colas R., **Cavazos A.** and Soto R.**,** "*Modelling Recalescence After Stock Reduction During Hot Strip Rolling*", Ironmaking & Steelmaking, 2006, 33 (6), 484-492.
- M. A. Urbano-Vázquez, J. Díaz-Mireles, **A. Cavazos**, M. Cabrera-Ríos, "*Estudio de Confiabilidad de Lámparas Automotrices*", Congreso Nacional de Control Automático AMCA 2007, memorias en CD.
- Urbano-Vázquez M. A., Díaz-Mireles J., **Cavazos A.**, Cabrera-Ríos M., "*Estudio de Confiabilidad en Lámparas Automotrices: Resultados Preliminares*", IEEE 5° Congreso Internacional en Innovación y Desarrollo Tecnológico, 2007, memorias en CD.
- Obregón A., Mendiola P., **Cavazos A.,** Leduc L., Ramirez J., "*Linear Multivariable Dynamic Model of a Hot Strip Finishing Mill*" Tercer Congreso y Exposición Nacional de la AIST, México 2007, proceedings on CD.
- Barrios Gómez J. A., **Cavazos A.,** Leduc L., Ramirez J., "*Modelado Semifísico Difuso de la Temperatura de Entrada a la Caja de Descascarado en Laminación en Caliente*", Tercer Congreso y Exposición Nacional de la AIST, México 2007, proceedings on CD.
- Obregón A, **Cavazos A,** Leduc L, Ramírez J., *"Modelo Dinámico Lineal Multivariable de un Molino de Laminación en Caliente"*, III Encuentro, Participación de la Mujer en la Ciencia, León Gto, 18-19 de marzo 2006, memorias en CD.
- **Cavazos A.** "*Considerations for Multivariable Control of the Twin-Roller Strip Caster*", ISA Transactions, 2006, 45 (2), 271-294.
- Torres M., **Cavazos A**., Melo D., Leduc L. y Ramírez J., *"Modelado Semifísico Para la Estimación de la Temperatura de Entrada a la Concha de Descascarado en un Molino de Laminación en Caliente Basado en RNA"* Segundo Congreso y Exposición Nacional de la AIST, México 2005, proceedings on CD.
- **Cavazos A.** and Edwards J. B., "*Force/Level Control of the Twin Roller Strip Caster*", Measurement & Control, 2005, 38 (9), pp. 276-282.
- G.M. Méndez, I. López-Juarez, R. Soto, L.A. Leduc, **A. Cavazos**. "Temperature Prediction in Hot Strip Mill Bars Using a Hybrid Type-2 Fuzzy Algorithm", IJSSST, 2005, 6 (9), 33-43.
- Edwards J. B. and **Cavazos A**. "*Interaction Analysis of the Twin Roller Strip Casting and Their Implications for Process Control*", Journal of Materials Engineering and Performance, 2005, 14 (3), 395-407.
- **Cavazos A.** and Edwards J. B., "*Multivariable H∞ Force/Level Control of the Twin-Roller Strip Caster*", Arabian Journal of Science and Engineering, 2005, 30 1C, 57-82.
- Méndez M., **Cavazos A.** Leduc L., Soto R. "Modelado de la Temperatura de la Barra de Transferencia a la Entrada del Descascarado Secundario usando Sistemas Híbridos Lógicos Difusos Tipo-1 Non-Singleton", Hierro y Acero, 2005, XI, (21), 20-23.
- Méndez M., **Cavazos A**., Leduc L., Soto R., "Hot Strip Mill Temperature Prediction Using Hybrid Learning Interval Singleton Type-2 FLS." IASTED Conference Modelling and Simulation, 2003, 380-85.
- Méndez M., **Cavazos A**., Leduc L., Soto R., "Modeling of a Hot Strip Mill Temperature Using Hybrid Learning Interval Type-1 and Type-2 Non-Singleton Type-2 FLSs", IASTED Conference AIA, 2003, 529-33.

TECHNICAL DEVELOPMENTS

- "*Methodology for electric bulb´s life prediction*", Viacom S.A. De C.V., 2007
- "*Fuzzy logic based system for grain size estimation after upset forging of IN728*", Frisa S.A. de C.V., 2007.
- "*System for Statistical Analysis of Head-end Thickness Performance*", APM S.A. de C.V., 2002
- "*Procedure to Determine Rolling Feasibility of a New Steel Grade*", APM S.A. de C.V., 2000

- "*Methodology to Determine the Deformation Curves of New Steel Grade*", APM S.A. de C.V., 1999
- "*Design and Assessment of a Discrete-Time Track Following Repetitive Control of an Optical Drive*", PHILIPS, The Netherlands, 1991. Currently, Philips CD/DVD Systems containing a Repetitive Controller for track following are on the market.
- "*Push-out Control for I.S. Glass Container Forming Machine*", VITRO S.A. de C.V., 1989.
- "*Phase Control for I.S. Glass Container Forming Machine*", VITRO S.A. de C.V. 1988.
- "*Electronic Control of Glass Forming Machine System 7-2* ", VITRO S.A. de C.V., 1987.

PROFESSIONAL EXPERIENCE

1998-2003	APM S.A. de C.V Automation Engineer, Hot Rolling Department.
2001-2003	Graduate Division FIME-UANL. Part-Time Professor, *Robotics for Manufacturing* and *Optimization of Manufacturing Systems*
1997-1998	VITRO S.A. de C.V**.** (temporary contract) Continuous Improvement Leader, NPD Department of the Glass Container Division.
1996-1997	ITESM (temporary contract) Professional Support, Integrated Manufacturing Systems Center, Teaching: *Classical Control* (undergraduate) and *Robotics for Manufacturing* (graduate)
1986-1990	VITRO S.A. de C.V. Project Leader, Department of Electronics and Control, VitroTec.

REFERENCES

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