



# Francisco-Ronay López-Estrada

## Curriculum Vitae


*"The science of today is the technology of tomorrow" -  
Edward Teller*

### Personal data

AGE: 38

RESEARCH GATE: [https://www.researchgate.net/profile/Francisco\\_Lopez\\_Estrada](https://www.researchgate.net/profile/Francisco_Lopez_Estrada)

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PUBLONS: H-6941-2019

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### Short bio

### Employment

2008–today **Lecturer**, *National Technological Institute of Mexico*, Tuxtla Gutierrez, Mexico.

### Education

2011–2014 **Ph.D. on Automatic Control**, *Center of Research on Automatic at Univeristy of Lorraine*, Nancy, Lorraine, France.

Dissertation date: December 05, 2014

2011–2015 **Ph.D. on Electronics Engineering**, *National Center of Research and Technological Development (CENIDET)*, Cuernavaca, Morelos, Mexico.

Dissertation date: February 06, 2015

2005–2008 **Master Science in Electronic Engineer. Esp. Automatic Control**, *National Center of Research and Technological Development (CENIDET)*, Morelos, Mexico.

Dissertation date: February 29, 2008.

Tuxtla Gutiérrez – Chiapas, Mexico

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2000–2005 **Electronic Engineer in Telecommunications**, *Technological Institute of Tuxtla Gutiérrez*, Chiapas, Mexico.  
Dissertation date: February 15, 2005.

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## Masters Thesis

Title *Characterization and validation of a binary distillation column.*  
Supervisors Professor David Juarez-Romero & Professor Víctor Alvarado  
Description In this work a detailed mathematical model for a distillation plant is developed for binary mixtures like Methanol-Ethanol and Ethanol-Water

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## Distinctions

- 2020 Editorial Board Member, Journal of Mathematical and Computational Applications.
- 2020 Editorial Board Member, International Journal of Applied Mathematics and Computer Science. Period: 2020-2023.
- 2020 Board Member of the Mexican Association of Automatic Control (AMCA). Period 2020-2021.
- 2019 President of TURIX-Dynamics, Diagnosis and Control Group [www.grupoturix.com](http://www.grupoturix.com)
- 2020 Guest Editor for the Special Issue: Advanced Mathematics and Computational Applications in Control Systems Engineering. Journal of Mathematical and Computational Applications (ISSN 2297-8747 electronic; ISSN 1300-686X print). Period: Dec 2017 - Oct 2018.
- 2019 Guest Editor for the Special Issue: Optimization for Control, Observation and Safety. Journal of Processes (ISSN 2227-9717). Period: Nov 2018 - Sep 2019.
- 2019 Guest Editor for the Special Issue: Optimization in Control Applications. Journal of Mathematical and Computational Applications (ISSN 2297-8747 electronic; ISSN 1300-686X print). Period: Dec 2017 - Oct 2018.
- 2019 National Researcher (SNI I). Awarded by: National Council of Science and Technology (Conacyt). Period: Jan 2019 - Dec 2022.
- 2019 National Researcher (SNI I). Awarded by: National Council of Science and Technology (Conacyt). Period: Jan 2016 - Dec 2018.
- 2015 Gold medal recognizing the research contribution in the state of Chiapas, Mexico.
- 2013 Eiffel scholarship by the Ministère des Affaires étrangères, France.

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## Publications

### Journals & books

- 2021 Santos-Ruiz, I., **López-Estrada, F.R.**, Puig, V., Torres, F.L., Valencia-Palomo, G. and Gómez-Peñate, S., 2021. Optimal Estimation of the Roughness Coefficient and Friction Factor of a Pipeline. Journal of Fluids Engineering. In Press.
- **López-Estrada, F.R.**, Méndez-López, A., Santos-Ruiz, I., Valencia-Palomo, G. and Escobar-Gómez, E., 2021. Fault detection in unmanned aerial vehicles via orientation signals and machine learning. Revista Iberoamericana de Automática e Informática industrial. In Press.

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- Pérez-Pérez, E.J., **López-Estrada, F.R.**, Valencia-Palomo, G., Torres, L., Puig, V. and Mina-Antonio, J.D., 2021. Leak diagnosis in pipelines using a combined artificial neural network approach. *Control Engineering Practice*, 107, p.104677.
- Guzman, J., **López-Estrada, F.R.**, Estrada-Manzo, V. and Valencia-Palomo, G., 2021. Actuator fault estimation based on a proportional-integral observer with nonquadratic Lyapunov functions. *International Journal of Systems Science*, pp.1-14.
- 2020 Gómez-Peñate, S., **López-Estrada, F.R.**, Valencia-Palomo, G., Rotondo, D. and Guerrero-Sánchez, M.E., 2020. Actuator and sensor fault estimation based on a proportional multiple-integral sliding mode observer for linear parameter varying systems with inexact scheduling parameters. *International Journal of Robust and Nonlinear Control*.
- Farrera, B., **López-Estrada, F.R.**, Chadli, M., Valencia-Palomo, G. and Gómez-Peñate, S., 2020. Distributed Fault Estimation of Multi-Agent Systems Using a Proportional-Integral Observer: A Leader-Following Application. *International Journal of Applied Mathematics and Computer Science*, 30(3), pp.551-560.
- Santos-Ruiz, I., **López-Estrada, F.R.**, Puig, V. and Valencia-Palomo, G., 2020. Simultaneous optimal estimation of roughness and minor loss coefficients in a pipeline. *Mathematical and Computational Applications*, 25(3), p.56.
- **López-Estrada, F.R.**, Santos-Estudillo, O., Valencia-Palomo, G., Gómez-Peñate, S. and Hernandez-Gutiérrez, C., 2020. Robust qLPV Tracking Fault-Tolerant Control of a 3 DOF Mechanical Crane. *Mathematical and Computational Applications*, 25(3), p.48.
- Enríquez-Zárate J, Valencia-Palomo G, **López-Estrada, F.R.**, Silva-Navarro G and Hoyo-Montaño JA (2020), "Efficient predictive vibration control of a building-like structure", *Asian Journal of Control*. Vol. 22(4), pp. 1411-1421.
- Jiménez-Cabas J., Torres **López-Estrada, F.R.**, Santos-Ruiz, I. and Manrique-Morelos F (2020), "Development of non-invasive monitoring approach to diagnose leaks in liquid pipelines" *Corporación Universidad de la Costa*.
- Kukurowski N, Pazera M, Witczak M, **López-Estrada, F.R.**, and Cruz TIB (2020), "Fault-Tolerant Tracking Control for Takagi-Sugeno Fuzzy Systems Under Actuator and Sensor Faults", In *Advanced, Contemporary Control*. , pp. 1434-1445. Springer, Cham.
- Torres L, Jiménez-Cabas J, González O, **López-Estrada, F.R.**, LM and others (2020), "Kalman filters for leak diagnosis in pipelines: brief history and future research", *Journal of Marine Science and Engineering*. Vol. 8(3), pp. 173. Multi-disciplinary Digital Publishing Institute.
- Valencia-Palomo G, **Lopez-Estrada F.R.**, Flores G, Dominguez-Zenteno J and Hoyo-Montano J-A (2020), "Fault diagnosis systems in unmanned aerial vehicles".
- Valencia-Palomo G, **Lopez-Estrada F.R.** and Rotondo D (2020), "Optimization for Control, Observation and Safety".

- 2019 Gómez-Peñate S, Valencia-Palomo G, **Lopez-Estrada F.R.**, Astorga-Zaragoza C-M, Osornio-Rios RA and Santos-Ruiz I (2019), "Sensor fault diagnosis based on a sliding mode and unknown input observer for Takagi-Sugeno systems with uncertain premise variables", Asian Journal of Control. Vol. 21(1), pp. 339-353.
- **Lopez-Estrada F.R.**, Rotondo, D. and Valencia-Palomo, G., 2019. A Review of Convex Approaches for Control, Observation and Safety of Linear Parameter Varying and Takagi-Sugeno Systems. Processes, 7(11), p.814.
  - Pereyra-Pitta, F.J., Valencia-Palomo, G., Cázarez-Castro, N.R., **López-Estrada, F.R.** and González-Contreras, B.M., 2019. Implementation of a Distributed Optimal Predictive Control in a Quadruple Tank System. IEEE Latin America Transactions, 17(01), pp.135-146.
  - Guerrero-Sánchez, M.E., Hernández-González, O., Lozano, R., García-Beltrán, C.D., Valencia-Palomo, G. and **López-Estrada, F.R.**, 2019. Energy-Based Control and LMI-Based Control for a Quadrotor Transporting a Payload. Mathematics, 7(11), p.1090.
  - Guzmán-Rabasa, J.A., **López-Estrada, F.R.**, González-Contreras, B.M., Valencia-Palomo, G., Chadli, M. and Pérez-Patricio, M., 2019. Actuator fault detection and isolation on a quadrotor unmanned aerial vehicle modeled as a linear parameter-varying system. Measurement and Control, p.0020294018824764.
  - Martínez-García, C., Astorga-Zaragoza, C., Puig, V., Reyes-Reyes, J. and **López-Estrada, F.R.**, 2019. A simple nonlinear observer for state and unknown input estimation: DC motor applications. IEEE Transactions on Circuits and Systems II: Express Briefs.
  - Mota-Grajales, R., Torres-Peña, J.C., Camas-Anzueto, J.L., Pérez-Patricio, M., Coutiño, R.G., **López-Estrada, F.R.**, Escobar-Gómez, E.N. and Guerra-Crespo, H., 2019. Defect detection in eggshell using a vision system to ensure the incubation in poultry production. Measurement, 135, pp.39-46.
  - **Lopez-Estrada, F.R.**, D. Theilliol, C. M. Astorga-Zaragoza, J. C. Ponsart, G. Valencia-Palomon, & J. Camas-Anzueto. Fault diagnosis observer for descriptor Takagi-Sugeno systems. Neurocomputing, Vol. 33(1), pp 10-17
  - S. Gómez-Peñate, G. Valencia-Palomo, **Lopez-Estrada, F.R.**, C. M. Astorga-Zaragoza, R. Osornio-Ríos, & I. Santos-Ruíz. Sensor Fault Diagnosis Based on a  $H_\infty$  Sliding Mode and Unknown Input Observer for Takagi-Sugeno Systems with Uncertain Premise Variables. Asian Journal of Control. Vol. 21 (1), pp. 1–15.
- 2018 I.Santos-Ruiz, J.R.Bermúdez, **Lopez-Estrada, F.R.**, V.Puig, L.Torres, & J.A.Delgado-Aguiñaga. Online leak diagnosis in pipelines using an EKF-based and steady-state mixed approach. Control Engineering Practice, vol. 81, pp:55-64.
- Bermúdez, J.R., **López-Estrada, F.R.**, Besançon, G., Valencia-Palomo, G., Torres, L. and Hernández, H.R., 2018. Modeling and Simulation of a Hydraulic Network for Leak Diagnosis. Mathematical and Computational Applications, 23(4), p.70.

- **Lopez-Estrada, F.R.**, C. M. Astorga Zaragoza, Guillermo Valencia Palomo, C. Galicia González, C. Rios Rojas & E. Escobar Gómez. Observer-based LPV stabilization system for a riderless bicycle. *IEEE LatinoAmerica Transactions*, vol. 16, No. 4, pp 1076-1083.
  - B. González-Contreras, G. L. Osorio-Gordillo, **Lopez-Estrada, F.R.**, G. Valencia Palomo, & C. M. Astorga-Zaragoza. Using the second-order information for reconfigurability analysis and design in the fault tolerant framework. *Automatika*, vol 59, no. 1, pp 52-62.
  - R. Gutiérrez-Urquidez, G. Valencia-Palomo, O. Rodríguez-Elías. **F. R. López-Estrada**, and J. Orrante-Sakanassi. On the Selection of Tuning Parameters in Predictive Controllers Based on NSGA-II. Book Chapter in *Numerical and Evolutionary Optimization*, Springer
  - S. Gómez-Peñate, **F.R. López-Estrada**, G. Valencia-Palomo, R. Osornio-Rios, C. Rios-Rojas, and J. Camas-Anzueto. Sensor Fault Diagnosis Observer for an Electric Vehicle Modeled as a Takagi-Sugeno System. *Journal of Sensors*, Volume 2018, Article ID 3291639, 9 pages.
- 2017 **Lopez-Estrada F.R.**, Astorga-Zaragoza, C.M., Theilliol, D., Ponsart, J.C., Valencia-Palomo, G. and Torres, L., 2017. Observer synthesis for a class of Takagi-Sugeno descriptor system with unmeasurable premise variable. Application to fault diagnosis. *International Journal of Systems Science*, pp.1-12.
- G. Valencia-Palomo, **F.R. López-Estrada**, C. García-Beltrán & J. Hoyo-Montaño. *An Improved Move-Blocking Strategy in Predictive Control for Setpoint Tracking*. *IEEE Latin America Transactions*, Vol. 15, No. 5.
  - J.L. Camas-Anzueto, J. Gómez-Pérez, R. Meza-Gordillo, G. Anzueto-Sánchez, M. Pérez-Patricio, **F.R. López-Estrada**. *Measurement of the viscosity of biodiesel by using an optical viscometer*. *Flow Measurement & Instrumentation*, Volume 54, April 2017, Pages 82-87, ISSN 0955-5986, IF: 1.152.
- 2016 D. Rotondo, **F. R. López-Estrada**, F. Nejari, J.-C. Ponsart, D. Theilliol, & V. Puig. *Actuator multiplicative fault estimation in discrete-time LPV systems using switched observers*. *Journal of the Franklin Institute*. Volume 353, Issue 13, September 2016, Pages 3176-3191, ISSN 0016-0032, IF:2.395.
- 2015 **F.R. López-Estrada**, J-C. Ponsart, Didier Theilliol, Y. Zhang & C. M. Astorga-zaragoza. *Robust Sensor Fault Diagnosis and Tracking Controller for a UAV Modelled as LPV System*. *Journal of Intelligent and Robotic Systems (Springer)*. Volume 84, Issue 1, pp 163–177, IF:1.178.
- 2015 **F.R. López-Estrada**, J.C. Ponsart, C. M. Astorga-Zaragoza & D. Theilliol.  *$H_2/H_\infty$  index Robust Fault Detection Observer for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions*. *International Journal of Control*, DOI:10.1080/00207179.2015.1044261, IF: 1.654
- 2015 **F.R. López-Estrada**, J. C. Ponsart, D. Theilliol, C. M. Astorga-Zaragoza, & J. L. Camas-Anzueto. *Robust Sensor Fault Estimation for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions: Application to an Anaerobic-Bioreactor*. *International Journal of Applied Mathematics and Computer Science (AMCS)*, Vol 25, No. 2. DOI: 10.1515/amcs-2015-0018, IF: 1.227

- 2014 G. Valencia-Palomo, J.A. Rossiter, and **F.R. López-Estrada**. Improving the feed-forward compensator in predictive control for setpoint tracking, ISA Transactions, Volume 53, Issue 3
- 2013 **F.R. López-Estrada**, J.C. Ponsart, C. M. Astorga-Zaragoza and D. Theilliol.  $H_-/H_\infty$  index Robust Fault Detection Observer for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions. Submitted to the International Journal of Control, second revision.
- 2014 **F.R. López-Estrada**, J. C. Ponsart, D. Theilliol, and C. M. Astorga-Zaragoza. Robust Sensor Fault Estimation for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions: Application to an Anaerobic-Bioreactor. International Journal of Applied Mathematics and Computer Science (AMCS). (Second revision).
- **F.R. López-Estrada**, C. M. Astorga-Zaragoza, J. C. Ponsart, D. Theilliol, and G. Valencia-Palomo. Actuator Fault Estimation Observer Design for Discrete-Time Descriptor-LPV Systems. Journal of Intelligent automation and Soft Computing (Taylor and Francis), (Submitted in July 2014).
- 2014 **F.R. López-Estrada**, J. C. Ponsart, Theilliol, C. M. Astorga-Zaragoza, and G. Valencia-Palomo. Descriptor Fault Detection and Isolation Observer Design for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions. International Journal of Control Automation and System Science (IJCAS) (Submitted in January 2015).
- 2012 G. Valencia-Palomo, C.M. Astorga-Zaragoza, **F.R. López-Estrada**, M. Adam-Medina and J. Reyes-Reyes. Discrete-time constrained model predictive control for distillation columns. International Journal of Innovative Computing, Information and Control, Vol. 8, No. 6, pp 3939-3952.
- 2010 D. Juárez-Romero, **F.R. López-Estrada**, C. M. Astorga-Zaragoza, V. M. Alvarádo and J. A. Hernández. Building a Model of a Pilot Distillation Column for Model Based Control. Mexican Journal of Chemical Engineering, Vol. 9, No. 3, pp 367-382, ISSN: 1665-2738.
- 2007 C. M. Astorga-Zaragoza, A. Santiago, **F.R. López-Estrada**, V. M. Alvarádo, A. Hernández, y D. Juárez-Romero, (2007). A Test Based Methodology for Parameters Estimation for a Pilot Plant Distillation Column. Book chapter in Advances in Dynamics, Instrumentation and control, vol. 2. pp. 106-115. Editorial World Scientific.

### Main conferences

- 2020
- Bermúdez, J.R., **López-Estrada, F.R.**, Besançon, G., Torres, L. and Santos-Ruiz, I., 2020, July. Leak-Diagnosis Approach for Water Distribution Networks based on a k-NN Classification Algorithm. In 21st IFAC World Congress 2020.
  - Santos-Ruiz, I., Blesa, J., Puig, V., **López-Estrada, F.R.**, Leak localization in water distribution networks using classifiers with cosenoidal.

- 2019 Santos-Ruiz, I., **López-Estrada, F.R.**, Puig, V. and Blesa, J., 2019, September. Estimation of Node Pressures in Water Distribution Networks by Gaussian Process Regression. In 2019 4th IEEE Conference on Control and Fault Tolerant Systems (SysTol) (pp. 50-55).
- Santos-Ruiz I, **López-Estrada, F.R.**, Puig Cayuela V, Blesa Izquierdo J and Javadiha M (2019), "Localización de fugas en redes de distribución de agua mediante k-NN con distancia cosenoidal", In CNCA-Congreso Nacional de Control Automático 2019. , pp. 370-375.
  - Gómez-Peñate, S., **López-Estrada, F.R.**, Valencia-Palomo, G., Rotondo, D. and Enríquez-Zárate, J., 2019. Actuator and sensor fault estimation based on a proportional-integral quasi-LPV observer with inexact scheduling parameters. IFAC-PapersOnLine, 52(28), pp.100-105.
- 2018 I. Santos-Ruiz, **F.R. López-Estrada**, V. Puig, E. Pérez-Pérez, J. Mina, and G. Valencia-Palomo, Diagnosis of Fluid Leaks in Pipelines Using Dynamic PCA. IFAC Symposium on Fault Detection, Supervision. and Safety for Technical Processes(SAFEPROCESS'18), Warsaw, Poland
- J. Jimenez, L. Torres, M. Sanjuan, **F.R. López-Estrada**, & E. Romero. Localization of Leaks in Water Distribution Networks Using Flow Readings. IFAC Symposium on Fault Detection, Supervision. and Safety for Technical Processes(SAFEPROCESS'18), Warsaw, Poland
  - Bermúdez, J.R., Santos-Ruiz, I., **López-Estrada, F.R.**, Besançon, G., Torres, L., Valencia-Palomo, G. and CONACyT, C., 2018, October. Modelado y simulación de una red hidráulica para diagnóstico de fugas. In Conference: Congreso Nacional de Control Automático, CNCA, AMCA 2018.
- 2017 **F.R. López-Estrada**, H. Hernández de León, V. Estrada-Manzo & M. Bernal. *LMI-Based Fault Detection and Isolation of Nonlinear Descriptor Systems*. 2017 IEEE Conference on Fuzzy Systems.
- Bermúdez, J.R., Santos-Ruiz, I., **López-Estrada, F.R.**, Torres, L. and Puig, V., 2017. Diseño y modelado dinámico de una planta piloto para detección de fugas hidráulicas. In Proceedings of the Congreso Nacional de Control Automático CNCA.
  - Jiménez-Cabas, J., Torres, L., **López-Estrada, F.R.** & Sanjuan, M., 2017, October. Leak diagnosis in pipelines by only using flow measurements. In Automatic Control (CCAC), 2017 IEEE 3rd IEEE Colombian Conference on (pp. 1-6).
- 2016 G. Ortiz-Torres, **F.R. López-Estrada**, C. García-Beltran, J. Reyes-Reyes, and D. Theilliol. *An Actuator Fault Detection and Isolation method design for Planar Vertical Take-off and Landing Unmanned Aerial Vehicle modelled as a qLPV system*. 4th IFAC International Conference on Intelligent Control and Automation Sciences (ICONS 2016) (Aceptado), Reims, France.
- 2015 **F.R. López-Estrada**, H. Castañón Gonzáles, J.C. Ponsart, and D. Theilliol. *Robust sensor fault detection and isolation of an anerobic bioreactor modeled as a descriptor-LPV system*. 1st IFAC Workshop on Linear Parameter Varying Systems, Grenoble, France

- **F.R. López-Estrada**, J.C. Ponsart, D. Theilliol, C.M. Astorga-Zaragoza, M. Flores-Montiel. *Robust state and fault estimation observer for discrete-time D-LPV systems with unmeasurable gain scheduling functions*. SAFESPROCESS, Application to a binary distillation column. 9th IFAC Symposium on Fault Detection, Supervision. and Safety for Technical Processes(SAFESPROCESS'15), Paris, France
- J. Galicia-González, C.M. Astorga-Zaragoza, J. A. Brizuela-Mendoza, **F.R. López Estrada**, and L. Pérez Lozano. *Estabilización de un vehículo de dos ruedas sin conductor mediante el enfoque LPV*. Congreso Nacional de Control Automático, AMCA 2015, Cuernavaca, Morelos, México
- 2014 **F.R. López-Estrada**, J.C. Ponsart, D. Theilliol, C. M. Astorga-Zaragoza, (2014). Robust Observer Design for Discrete Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions. IEEE Multi-Conference on Systems and Control, Antibes/Nice, France
- 2014 **F.R. López-Estrada**, J.C. Ponsart, D. Theilliol, C. M. Astorga and S. Aberkane . Fault Diagnosis Based on Robust Observer for Descriptor-LPV Systems with Unmeasurable Scheduling Parameters. In The 19th World Congress of the International Federation of Automatic Control. Cape Town, South Africa.
- 2014 **F.R. López-Estrada**, J.C. Ponsart, D. Theilliol, C. M. Astorga-Zaragoza. Robust Sensor FDI Observer for Polytopic Descriptor LPV systems with Unmeasurable Scheduling Varying Parameter. In American Control Conference. Portland, OR, USA.
- 2014 **F.R. López-Estrada**, J.C. Ponsart, D. Theilliol, C. M. Astorga-Zaragoza, and Y. Zhang, (2014). Robust Sensor Fault Diagnosis and Tracking Controller for a UAV Modelled as LPV System. The 2014 IEEE International Conference on Unmanned Aircraft Systems, ICUAS'14. Orlando, Florida, USA.
- 2013 **F.R. López-Estrada**, J.C. Ponsart, C. M. Astorga and D. Theilliol. Fault Estimation Observer Design for Descriptor-LPV Systems with Unmeasurable Gain Scheduling Functions. 2nd IEEE International Conference on Control and Fault-Tolerant Systems. Nice, France
- 2012 **F.R. López-Estrada**, J.C. Ponsart, C. M. Astorga and D. Theilliol. Developments of a Scilab/Matlab toolbox dedicated to LTI/LPV descriptor systems for fault diagnosis. 10th European Workshop on Advanced Control and Diagnosis. Copenhagen, Denmark.
- 2010 **F.R. López-Estrada**, J. H. Castañón, C.A. López-Arias, W. Torres-Roblero and A. Rosales. A methodology for biomass and substrate estimation in a bioreactor. 5th Biotechnology Conference Chiapas (in spanish). Chiapas, Mexico.
- 2009 J. E. Velazquez-López, J. A. P'erez-Cueto, **F.R. López-Estrada**, R. Rincón-Moreno and N. Juárez-Rodríguez. ADS-CoLiSys: Graphical user interface for the analysis, design and control of linear systems in continuous time. National conference of the Golf (CONAGOLFO). Orizaba, Mexico.



2007 **F.R. López-Estrada**, G. Valencia-Palomo D. Juárez-Romero, V. M. Alvarado, C. M. Astorga-Zaragoza y M. A. Mendez-Gamboa. The use of complementary parameter estimation techniques for adequate model-based predictive control of a pilot distillation plant. Annual Conference of the Mexican Association of Automatic Control (AMCA'07). Monterrey, Mexico

**F.R. López-Estrada**, D. Juárez-Romero, V. M. Alvarado, E. Quintero-Mármol, G. Valencia-Palomo. A Test-based Parameter Estimation Of A Bench-scale Distillation Column For Predictive Control. International Conference of Dynamic and Control Process (DYCOPS 07), Cancun, Mexico.

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## Experience

### Vocational

2008–present **Lecturer**, INSITUTO TECNOLÓGICO DE TUXTLA GUTIÉRREZ, Tuxtla Gutiérrez, Chiapas, Mexico..

Professor assigned to the department of Electronic and the Division of Graduate Studies and Research. I participated in the master of mechatronic engineering and the bachelor of engineering in electronics.

### Miscellaneous

2013–present **Reviewer**, *ISA Transactions, International Journal of Control, Asian Journal of Control, IEEE Transactions on Systems, Man, and Cybernetics, SCIENCE CHINA Information Sciences, International Journal of Applied Mathematics and Computer Science, IEEE Circuits and Systems, Fuzzy Set and Systems, IEEE Access, IET Control Theory and Applications, International Journal of System Science, Sensors MDPI, Contro Engineering Practice, IEEE Access.* .

2013 **Local committee organizer**, *2nd IEEE International Conference on Control and Fault-Tolerant Systems. Nice, France.* .

2010 **Local committee organizer**, *8th IEEE International Conference on Electrical Engineering Computing Science and Automatic Control (CCE), Tuxtla Gutiérrez, Mexico.*

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## Seminaries and courses

2014 **Model Predictive Control**, *By professor Jan Maciejowski*, at the International Graduate School on Control (EECI) in SUPELEC, Paris, France.

2013 **Switched Systems and Control**, *By professor Daniel Liberzon*, at the International Graduate School on Control (EECI) in SUPELEC, Paris, France.

2013 **Observation, Diagnostic, and fault tolerant control of Takagi-Sugeno systems**, *By professor Mohamed Chadli*, at the School of Modelling, Analysis and Control of Dynamic Systems, Strasbourg, France.

2007 **Numerical Methods in Chemical Engineer**, *by Professor William Gear*, at the XXIV seminary of Chemical Engineer, Technological Institute of Celaya. Celaya, Mexico

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2006 **Distillation seminary**, by Professor David Juárez, by the Autonomous University of Morelos, Morelos, Mexico.

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## Others

- 2011-2017 IEEE MEMBER
- 2017-current Leader of the Research group of diagnosis and control system (grupoturix.com)
- 2003-current MEMBER OF THE GROUP OR RESEARCH AND TECHNOLOGICAL DEVELOPMENT (GICDT), Awarded with National Prime for Energy Saving 2010 by the Mexican Department of Energy.
- 2012-current DEVELOP AND MAINTENANCE OF THE SCILAB/MATLAB DECATOKI TOOLBOX, Descriptor and LPV Systems Calculation Tool Kit, available on-line with more of 2100 downloads at Scilab/atoms <http://atoms.scilab.org/toolboxes/DeCaToKi> and the Matlab files exchange page.

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## Languages

Spanish	<b>Mother tongue</b>	
English	<b>Advanced</b>	<i>Con conversationally and writing fluent</i>
French	<b>Intermediate</b>	<i>Con conversationally fluent</i>

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## Research Interests

- Application and theory of control engineering
- Model-based fault diagnosis methods design (Linear, Multi-linear approach, LPV systems)
- Industrial process fault monitoring
- Pipeline leak diagnosis
- Fault Tolerant Control design
- Descriptor system modelling
- Unmanned aerial vehicles

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