Dr. Víctor Estrada Manzo

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Ingeniero en Mecatrónica por la Universidad de Guadalajara (2005-2009). Maestro en Ciencias en Ingeniería Eléctrica, especialidad Control Automático por el CINVESTAV Unidad Guadalajara (2010-2012). Doctor en Ciencias, especialidad Control Automático por la Universidad de Valenciennes y de Hainaut-Cambrésis, Francia (2012-2015). Posdoctorante CONACYT adjunto al programa de posgrado PNPC de Maestría en Ciencias de la Ingeniería del Instituto Tecnológico de Sonora, México (2016-2018). Miembro del Sistema Nacional de Investigadores nivel 1. A partir de octubre de 2018, es profesor investigador adscrito a la dirección de Ingeniería Mecatrónica de la Universidad Politécnica de Pachuca. Áreas interés: Análisis y síntesis de sistemas no lineales por medio de modelos convexos y desigualdades matriciales lineales.

Principal producción académica:

Artículos en revista

- J. Martínez, B. Aguiar, **V. Estrada-Manzo**, M. Bernal (2021) *Actuator fault detection for discrete-time descriptor systems via a convex unknown input observer with unknown scheduling variables* Mathematical Problems in Engineering.
- J. A. Romero-Vega, R. Villafuerte-Segura, **V. Estrada-Manzo** (2021) *LMI-based analysis and stabilization of nonlinear descriptors with multiple delays via delayed nonlinear controller schemes*. Mathematical Problems in Engineering,
- J. Guzmán, F. R. López-Estrada, **V. Estrada-Manzo**, G. Valencia-Palomo (2021). *Actuator fault estimation based on a proportional-integral observer with nonquadratic Lyapunov functions.* International Journal of Systems Science.
- J. Martínez, **V. Estrada-Manzo**, M. Bernal (2020). *Diseño de Observadores No Lineales para Plantas Mecatrónicas por Medio de LMIs.* Pädi Boletín Científico De Ciencias Básicas E Ingenierías Del ICBI, 8(16), pp.75-81.
- D. Quintana, **V. Estrada-Manzo**, M. Bernal (2020). An Exact Handling of the Gradient for Overcoming Persistent Problems in Nonlinear Observer Design via Convex Optimization Techniques. Fuzzy Sets and Systems. Abril. Doi: https://doi.org/10.1016/j.fss.2020.04.012 .
- C. Armenta, **V. Estrada Manzo**, M. Bernal, A. Sala (2020). Exact Takagi-Sugeno Descriptor Models of Recurrent High-Order Neural Networks for Control Applications. Computational and Applied Mathematics ; vol. 39(29) ;. doi: 10.1007/s40314-019-0998-y.

- C. Armenta, T. Laurain, **V. Estrada Manzo**, M. Bernal (2019). *A Novel Identification-Based Convex Control Scheme via Recurrent High-Order Neural Networks: an Application to the Internal Combustion Engine.* Neural Processing Letters, vol 51, pp. 303-324.
- D. Quintana, **V. Estrada-Manzo**, M. Bernal (2019). *Fault Detection and Isolation via a Novel Convex Optimization Scheme*. IEEE Latin America Transactions, vol. 17 (7), pp. 1096-1101.
- **V. Estrada-Manzo**, Zs. Lendek, T.M. Guerra (2019). *An alternative LMI static output feedback control design for nonlinear systems represented by Takagi-Sugeno models*. ISA Transactions, vol 84, pp 104-110.
- J.C. Arceo, M. Sánchez, **V. Estrada-Manzo**, M. Bernal (2018). *Convex stability analysis of nonlinear singular systems via linear matrix inequalities*. IEEE Transactions on Automatic Control.
- J.C. Arceo, R. Márquez, **V. Estrada-Manzo**, M. Bernal (2018). *Stabilization of nonlinear singular systems via exact convex models and robust differentiators.* International Journal of Fuzzy Systems, Vol. 20 (5), pp. 1451-1459.
- M. Blandeau, **V. Estrada-Manzo**, T.M. Guerra, P. Pudlo, F. Gabrielli (2018). *Fuzzy unknown input observer for understanding sitting control of persons living with spinal cord injury*. Engineering Applications of Artificial Intelligence, vol. 67, pp. 381-389.
- González, **V. Estrada-Manzo**, T.M. Guerra (2017). *Gain-scheduled H infinity admissibilisation of LPV discrete-time systems with LPV singular descriptor*. International Journal of Systems Science, vol. 48 (15), pp. 3215-3224.
- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra (2016). *Generalized LMI observer design for discrete-time nonlinear descriptor models.* Neurocomputing, vol. 182, pp 210-220.
- T. M. Guerra, **V. Estrada-Manzo**, Zs. Lendek. (2015). *Observer design for nonlinear descriptor systems: an LMI approach*. Automatica (52), pp. 154-159.
- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra, P. Pudlo. (2015). *Controller design for discrete-time descriptor models: a systematic LMI approach*. IEEE Transactions on Fuzzy Systems, vol. 23, pp. 1608-1621.

Capítulos de libro

- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra. (2016). *Observer design for robotic systems via Takagi-Sugeno models and linear matrix inequalities*. Book chapter in Handling Uncertaintiy and Networked Structure in Robot Control. Ed. Springer, vol. 42, pags. 103-128.

Libros

- M. Bernal, **V. Estrada-Manzo**, R. Márquez (2018). *Diseño e implementación de sistemas de control basados en estructuras convexas y desigualdades matriciales lineales*; Editorial Pearson Educación México. Pp. 144. ISBN: 978-607-32-4332-2.

Artículos publicados en memorias de congresos

- D. Quintana, **V. Estrada-Manzo**, M. Bernal (2020). Adaptive Nonlinear Observer Design via a Poltytopic Split of Signals. In proceedings of the 21st IFAC World Congress. Pp. 1-6, Berlín, Alemania.
- D. Quintana, **V. Estrada-Manzo**, M. Bernal (2018). *A methodology for real-time implementation of nonlinear observers via convex optimization*. In proceedings of the 2018 IEEE International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE). Pp. 1-5, Mexico City, Mexico.
- J.C. Arceo, R. Villafuerte, **V. Estrada-Manzo**, M. Bernal. (2018). *LMI-based exponential estimates for time-delay nonlinear descriptor systems.* In proceedings of the 3rd IFAC International Conference on Embedded Systems, Computational Intelligence and Telematics in Control (CESCIT). Vol. 51(10), Pp. 139-144.Faro, Portugal.
- J.C. Arceo, R. Villafuerte, **V. Estrada-Manzo**, M. Bernal. (2018). *LMI-based controller design for time-delay nonlinear descriptor systems with guaranteed exponential estimates.* In proceedings of the 2nd IFAC Conference on Modelling, Identification and Control of Nonlinear systems (MICNON). Vol. 51 (13), pp. 585-590. Guadalajara, México.
- M. Sánchez, J.C. Arceo, **V. Estrada-Manzo**, M. Bernal. (2018) *Stability analysis of nonlinear singular systems via polytopic models of the characteristic equation*. 9th Vienna International Conference on Mathematical Modeling, pp. 17-18. Viena, Austria.
- Coronado, O. Peñaloza-Mejía, **V. Estrada-Manzo**, M. Bernal (2017). *A Comparison of Fuzzy Schemes for Trajectory Tracking on the Furuta Pendulum*. In proceedings of the 2017 Congreso Nacional de Control Automático. Pp. 499-503. Monterrey, México.
- D. Quintana, **V. Estrada-Manzo**, M. Bernal (2017). *Real-time parallel distributed compensation of an inverted pendulum via exact Takagi-Sugeno models*. In proceedings of the 2017 IEEE International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE). Pp. 1-5, Mexico City, Mexico.
- F.R. López-Estrada, H.R. Hernández, **V. Estrada-Manzo**, M. Bernal (2017). *LMI-based fault detection and isolation of nonlinear descriptor systems*. In proceedings of the 2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Naples, Italy.
- M. Blandeau, T.M. Guerra, P. Pudlo, F. Gabrielli, **V. Estrada-Manzo** (2016). *Modélisation du Maintien de la Posture Assise chez la Personne avec Lésions Médullaires Complètes. Observation à Entrées Inconnues de Systèmes non linéaires sous forme Takagi-Sugeno*. In proceedings of the Handicap 2016, Paris, IFRATH, Prix du Meilleur papier.
- J.C. Arceo, D. Vázquez, **V. Estrada-Manzo**, R. Márquez, M. Bernal (2016). *Nonlinear convex control of the Furuta pendulum based on its descriptor model*. In proceedings of the 13th IEEE Int. Conf. on Electrical Eng. Science and Automatic Control (CCE), pp. 1-6. Mexico.

- D. Vázquez, J. C. Arceo, R. Márquez, **V. Estrada-Manzo**, M. Bernal (2016). LMI-based nonlinear control of the Futura pendulum. In proceedings of the 2016 Congreso Nacional de Control Automático (AMCA), pp. 1.-6. Querétaro, Mexico.
- M. Blandeau, **V. Estrada-Manzo**, T.M. Guerra, P. Pudlo, F. Gabrielli (2016). *Seated stability for spinal-cord injury: a model-based approach.* In proceedings of the 2016 Conference of the European Society of Biomechanics (ESB). Lyon, France.
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- M. Blandeau, **V. Estrada-Manzo**, T.M. Guerra, P. Pudlo, F. Gabrielli (2016). *Unknown input observer for understanding sitting control of person with spine cord injury.* In proceedings of the 4th IFAC on Intelligent Control and Automation Sciences (ICONS), Reims, France.
- **V. Estrada-Manzo**, Zs. Lendek, T.M. Guerra. (2015). *Unknown input estimation of nonlinear descriptor systems via LMIs and Takagi-Sugeno models*. In proceedings of the 54rd IEEE Conference on Decision and Control (IEEE CDC). Osaka, Japón.
- **V. Estrada-Manzo**, T.M. Guerra, Zs. Lendek. (2015). *Static output feedback control for continuous-time TS descriptor models: decoupling the Lyapunov function.* In proceedings of the 2015 IEEE International Conf. on Fuzzy Systems (FUZZ-IEEE). Estambul, Turquía.
- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra. (2015). *Improving observer design for discrete-time TS descriptor models under the quadratic framework.* In proceedings of the 2nd Conf. on Embedded Systems, Computational Intelligence and Telematics in Control. Maribor, Eslovenia.
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- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra. (2014). *H infinity control for discrete-time Takagi-Sugeno descriptor models: a delayed approach*. In proc. of the Rencontres francophones sur la logique flue et ses applications, Càrsege, France. pp 175-182.
- **V. Estrada-Manzo**, T. M. Guerra, Zs. Lendek. (2014). *An LMI approach for observer design for Takagi-Sugeno descriptor models*. In proc. of the 2014 IEEE Int. Conf. on Automation, Quality and Testing, Robotics (AQTR), Cluj-Napoca, Romania. Pp. 1-5.
- **V. Estrada-Manzo**, Zs. Lendek, T. M. Guerra. (2014). *Discrete-time Takagi-Sugeno descriptor models: observer design.* In proc. of the 19th World Congress of the Int. Federation of Automatic Control, Cape Town, South Africa. Pp. 7965-7969.
- **V. Estrada-Manzo**, T. M. Guerra, Zs. Lendek, P. Pudlo. (2014) *Discrete-time Takagi-Sugeno descriptor models: controller design*. In proc. of the 2014 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE). Beijing, China, pp. 2277-2281.
- **V. Estrada-Manzo**, T. M. Guerra, Zs. Lendek, M. Bernal. (2013). *Improvements on non-quadratic stabilization of continuous-time Takagi-Sugeno descriptor models*. In

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- M. Bernal. R. Márquez, **V. Estrada-Manzo**, B. Castillo-Toledo. (2012). *Nonlinear output regulation via Takagi-Sugeno fuzzy mappings: a full-information LMI approach*. In Proceedings of the 2012 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Brisbane, Australia, pp. 1-6.
- M. Bernal. R. Márquez, **V. Estrada-Manzo**, B. Castillo-Toledo. (2012). *An element-wise linear matrix inequality approach for output regulation problems*. In proceedings of the IEEE World Automation Congress, Puerto Vallarta, Mexico, pp 1-6.