
DORIS SÁEZ HUEICHAPAN

Full Professor, Department of Electrical Engineering, University of Chile

Date and Place of Birth: July 26th, 1971, Chile

Identification (RUT/Passport): 8.952.312-5/F34559007

Address: Av. Tupper #2007, Santiago, Chile

Telephone: (56-2)-29784091

Email: dsaez@ing.uchile.cl | Web site: <http://www.cec.uchile.cl/~dsaez/>

<https://publons.com/researcher/2854321/doris-saez/>

<https://orcid.org/0000-0001-8029-9871>

EDUCATION

- Doctor in Engineering Sciences, Pontificia Universidad Católica de Chile, December 2000.
- Master in Engineering Sciences, Pontificia Universidad Católica de Chile, August 1995.
- Civil Engineering, Mayor in Electrical Engineering, Pontificia Universidad Católica de Chile, August 1995.
- Bachelor in Engineering Sciences, Pontificia Universidad Católica de Chile, March 1993.

POSITIONS

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| 2018- Date | Full Professor, Department of Electrical Engineering, University of Chile. |
| 2019- Date | Sub-directorate of Indigenous People, Faculty of Mathematical and Physical Sciences, University of Chile. |
| 2010 – 2018 | Associate Professor, Department of Electrical Engineering, University of Chile. |
| 2003-2010 | Assistant Professor, Department of Electrical Engineering, University of Chile. |
| 1997 - Date | Faculty Member, Department of Electrical Engineering, University of Chile. |

JOURNAL ASSOCIATE EDITOR

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| 2022- 2023 | Associate Editor <i>IEEE Electrification Magazine</i> |
| 2020- 2022 | Associate Editor <i>IEEE Transactions on Smart Grid</i> |
| 2017 - 2020 | Associate Editor <i>IEEE Control Systems Magazine</i> |
| 2011 - 2019 | Associate Editor <i>IEEE Transactions on Fuzzy Systems</i> |

2012-2013 Associate Editor *Soft Computing*

AWARDS

- 2018 Outstanding Woman in Energy, Ministry of Energy, March 2018.
- 2018 Recognition of 10 outstanding UC female engineers, Pontificia Universidad Católica de Chile, November 2018.
- 2009 MGA-IEEE Achievement Award. For increasing member engagement by implementing and developing an IEEE National Distinguished Lecturer Program in Chile, November 2009.
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PARTICIPATION IN SCIENTIFIC SOCIETIES

- 2011-2013 Chair of Chilean Chapter IEEE Computational Intelligence Society.
- 2009-2010 Vice-Chair of IEEE Chile Section.
- 2007-2008 Chair of IEEE Chile Section.
- 2008 Member of Ad Hoc Committee on IEEE as a Model Global Association.
- 2005 - Date Senior Member IEEE.
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PUBLICATIONS

▪ BOOKS & BOOKS CHAPTERS

- [1] Universidad de Chile, “Cien propuestas para el país que queremos,” Universidad de Chile, 2021, doi: 10.34720/5H56-4676.
- [2] Núñez, A., Sáez, D., Cortés, C. “Hybrid Predictive Control for Dynamic Transport Problems”, Springer-Verlag London, Series Advances in Industrial Control, England, 2013, 172 Pages, ISBN-10: 1447143507 | ISBN-13: 978-1447143505.
- [3] Sáez, D., Cipriano, A., Ordys, A. “Optimization of Industrial Processes at Supervisory Level: Application to Control of Thermal Power Plants”. Springer-Verlag London, Series Advances in Industrial Control, England, 2002, 187 Pages. ISBN: 1852333863.
- [4] Sáez, D., Cipriano, A. “Supervisory Predictive Control of a Combined Cycle Thermal Power Plant”, Book Chapter “Thermal power plant simulation, monitor and control”, Edited by D. Flynn; IEE, The Institution of Electrical Engineering, 2003, United Kingdom, pp. 161-178, ISBN: 0 85296 419 6.

▪ ISI JOURNAL ARTICLES

- [1] C. Ahumada, L. Tarisciotti, D. Sepúlveda and **D. Sáez**, "Torsional Vibrations Reduction in More Electric Ships Propellers Using Model Predictive Control," in *IEEE Transactions on Industry Applications*, doi: 10.1109/TIA.2024.3471974.
- [2] O. Cartagena, F. Trovò, and **D. Sáez**, "A multivariate approach for fuzzy prediction interval design and its application for a climatization system forecasting," *Expert Systems with Applications*, vol. 255. Elsevier BV, p. 124715, Dec. 2024. doi: 10.1016/j.eswa.2024.124715.
- [3] J. Ocaranza, **D. Sáez**, L. Daniele, and C. Ahumada, "Energy-water management system based on robust predictive control for open-field cultivation," *Science of The Total Environment*, vol. 946. Elsevier BV, p. 174241, Oct. 2024. doi: 10.1016/j.scitotenv.2024.174241.
- [4] Morales, R., Marín. L., Roje, T., Caquilpan, V., **Sáez, D.**, Nuñez, A., Microgrid planning based on computational intelligence methods for rural communities: A case study in the José Painecura Mapuche community, Chile, *Expert Systems with Applications*, Volume 235, 2024, 121179, ISSN 0957-4174, <https://doi.org/10.1016/j.eswa.2023.121179>.
- [5] O. Cartagena, F. Trovò, M. Roveri and **D. Sáez**, "Evolving Fuzzy Prediction Intervals in Nonstationary Environments," in *IEEE Transactions on Emerging Topics in Computational Intelligence*, vol. 8, no. 1, pp. 903-916, Feb. 2024, doi: 10.1109/TETCI.2023.3296486.
- [6] S. Parra and **D. Sáez**, "Deep learning prediction intervals based on selective joint supervision," *Applied Intelligence*, vol. 53, no. 19. Springer Science and Business Media LLC, pp. 21706–21722, Jun. 09, 2023. doi: 10.1007/s10489-023-04610-8.
- [7] R. A. Labra Mocarquer, C. Basáez Villagrán, **D. Sáez** Hueichapan, and C. Rodríguez-Seeger, "Proyecto Piwkeyewün: Lineamientos para el co-diseño de sistemas de cultivo vegetal tecnológico indígena," *Estudios Avanzados*, no. 39. University of Santiago of Chile, pp. 145–169, Dec. 20, 2023. doi: 10.35588/estudav.v0i39.5731.
- [8] Cartagena, O., Ožbot, M., **Sáez, D.**, Škrjanc, I. Evolving fuzzy prediction interval for fault detection in a heat exchanger, *Applied Soft Computing*, Volume 145, 2023, 110625, ISSN 1568-4946, <https://doi.org/10.1016/j.asoc.2023.110625>.
- [9] R. Bustos, L. G. Marín, A. Navas-Fonseca, L. Reyes-Chamorro, and **D. Sáez**, "Hierarchical energy management system for multi-microgrid coordination with demand-side management," *Applied Energy*, vol. 342. Elsevier BV, p. 121145, Jul. 2023. doi: 10.1016/j.apenergy.2023.121145.
- [10] A. Navas-Fonseca, C. Burgos-Mellado, J. S. Gómez, E. Espina, J. Llanos, **D. Sáez**, M. Sumner, D. E. Olivares "Distributed predictive secondary control with soft constraints for optimal dispatch in hybrid AC/DC microgrids," in *IEEE Transactions on Smart Grid*, doi: 10.1109/TSG.2023.3261569.
- [11] E. Espina, R. J. Cárdenas-Dobson, J. W. Simpson-Porco, M. Kazerani and **D. Sáez**, "A Consensus-Based Distributed Secondary Control Optimization Strategy for Hybrid Microgrids," in *IEEE Transactions on Smart Grid*, vol. 14, no. 6, pp. 4242-4255, Nov. 2023, doi: 10.1109/TSG.2023.3263107.
- [12] Endo, A.; Parra, S.; Cartagena, O.; **Sáez, D.**; Muñoz, C.; Huircan, J.I. Energy–Water Management System Based on MPC for a Greenhouse in a Mapuche Indigenous Community. *Appl. Sci.* 2023, 13, 4734. <https://doi.org/10.3390/app13084734>.
- [13] S. Parra, **D. Sáez**, Deep Learning Prediction Intervals based on Selective Joint Supervision, *Applied Intelligence*, 53, 21706–21722 (2023). <https://doi.org/10.1007/s10489-023-04610-8>.
- [14] E. Rute-Luengo, A. Navas-Fonseca, J. Gómez, E. Espina, C. Burgos-Mellado, **D. Sáez**, M. Sumner, D. Muñoz-Carpintero "Distributed Model-based Predictive Secondary Control for Hybrid AC/DC Microgrids," in *IEEE Journal of Emerging and Selected Topics in Power Electronics*, vol. 11, no. 1, pp. 627-642, Feb. 2023, doi: 10.1109/JESTPE.2022.3157979.

- [15] D. Köbrich, L. G. Marín, D. Muñoz-Carpintero, C. Ahumada, **D. Sáez**, M. Sumner, G. Jiménez-Estévez "A robust distributed energy management system for the coordinated operation of rural multi-microgrids," *International Journal of Energy Research*, August 2022. <https://doi.org/10.1002/er.8502>.
- [16] J. M. Rey, G. Vera, P. Acevedo-Rueda, J. Solano, M. A. Mantilla, J. Llanos, **D. Sáez** "A Review of Microgrids in Latin America: Laboratories and Test Systems," in *IEEE Latin America Transactions*, vol. 20, no. 6, pp. 1000-1011, June 2022, doi: 10.1109/TLA.2022.9757743.
- [17] Navas-Fonseca, A., Burgos-Mellado, C., Gómez, J., Donoso, F., Tarisiotti, L., **Sáez, D.**, Cárdenas, R., Sumner, M., "Distributed Predictive Secondary Control for Imbalance Sharing in AC Microgrids," in *IEEE Transactions on Smart Grid*, vol. 13, no. 1, pp. 20-37, Jan. 2022, doi: 10.1109/TSG.2021.3108677.
- [18] Rozas, H., Muñoz-Carpintero, **Sáez, D.**, Orchard, M., "Solving in Real-time the Dynamic and Stochastic Shortest Path Problem for Electric Vehicles by a Prognostic Decision Making Strategy", *Expert Systems With Applications*, vol. 184, 2021, 115489.
- [19] Raya-Armenta, J., Bazmohammadi, N., Avina-Cervantes, J., **Sáez, D.**, Vasquez, J. C. and Guerrero, J. "Energy Management System Optimization in Islanded Microgrids: An Overview and Future Trends", *Renewable and Sustainable Energy Reviews*, vol. 149, October 2021, 111327, doi.org/10.1016/j.rser.2021.111327.
- [20] Cartagena, O., Parra, S., Muñoz-Carpintero, D., Marín, L., **Sáez, D.**, "Review on Fuzzy and Neural Prediction Interval Modelling for Nonlinear Dynamical Systems", in *IEEE Access*, vol. 9, pp. 23357-23384, 2021, doi: 10.1109/ACCESS.2021.3056003.
- [21] Espina, E., Cardenas-Dobson, R., Simpson-Porco, J. W., **Saez, D.**, Kazerani, M., "A Consensus-Based Secondary Control Strategy for Hybrid AC/DC Microgrids with Experimental Validation," in *IEEE Transactions on Power Electronics*, vol. 36, no. 5, pp. 5971-5984, May 2021, doi: 10.1109/TPEL.2020.3031539.
- [22] Navas, A., Gómez, J. S., Llanos, J., Rute, E., **Sáez, D.**, Sumner, M., "Distributed Predictive Control Strategy for Frequency Restoration of Microgrids Considering Optimal Dispatch," in *IEEE Transactions on Smart Grid*, vol. 12, no. 4, pp. 2748-2759, July 2021, doi: 10.1109/TSG.2021.3053092.
- [23] Roje, T., **Sáez, D.**, Muñoz, C., Daniele, L., "Energy–Water Management System Based on Predictive Control Applied to the Water–Food–Energy Nexus in Rural Communities", *Applied Sciences*. 2020; 10(21):7723. <https://doi.org/10.3390/app10217723>.
- [24] Burgos-Mellado, C., Llanos, J., Espina, E., **Sáez, D.**, Cárdenas, R., Sumner, M., Watson, A., "Single-Phase Consensus-Based Control for Regulating Voltage and Sharing Unbalanced Currents in 3-Wire Isolated AC Microgrids," in *IEEE Access*, vol. 8, pp. 164882-164898, 2020, doi: 10.1109/ACCESS.2020.3022488.
- [25] Espina, E., Llanos, J., Burgos-Mellado, C., Cárdenas-Dobson, R., Martínez-Gómez, M., **Sáez, D.**, "Distributed Control Strategies for Microgrids: An Overview," in *IEEE Access*, vol. 8, pp. 193412-193448, 2020, doi: 10.1109/ACCESS.2020.3032378.
- [26] Diaz, C., Quintero, V., Pérez, A., Jaramillo, F., Burgos-Mellado, C., Rozas, H., Orchard, M., **Sáez, D.**, Cárdenas, R. "Particle-Filtering-Based Prognostics for the State of Maximum Power Available in Lithium-Ion Batteries at Electromobility Applications," in *IEEE Transactions on Vehicular Technology*, vol. 69, no. 7, pp. 7187-7200, July 2020, doi: 10.1109/TVT.2020.2993949.
- [27] Serban, I., Céspedes, S., Marinescu, C., Azurdia-Meza, C., Gómez, J., **Sáez, D.**, "Communication Requirements in Microgrids: a Practical Survey," *IEEE Access*, vol. 8, pp. 47694-47712, 2020, doi: 10.1109/ACCESS.2020.2977928.

- [28] Gómez, J., **Sáez, D.**, Simpson-Porco, J., Cárdenas, R., “Distributed Predictive Control for Frequency and Voltage Regulation in Microgrids,” *IEEE Transactions on Smart Grid*, vol. 11, no. 2, pp. 1319-1329, March 2020, doi: 10.1109/TSG.2019.2935977.
- [29] Burgos-Mellado, C., Llanos, J., Cárdenas, R., **Sáez, D.**, Olivares, D., Sumner, M., Costabeber, A., “Distributed Control Strategy Based on a Consensus Algorithm and on the Conservative Power Theory for Imbalances and Harmonics Sharing in 4-Wire Microgrids”, *IEEE Transactions on Smart Grid*, vol. 11, no. 2, pp. 1604-1619, March 2020, doi: 10.1109/TSG.2019.2941117.
- [30] Espina, E., Cardenas-Dobson, R., Espinoza-B, M., Burgos-Mellado, C., **Sáez, D.**, “Cooperative Regulation of Imbalances in Three-Phase Four-Wire Microgrids Using Single-Phase Droop Control and Secondary Control Algorithms”. *IEEE Transactions on Power Electronics*, vol. 35, no. 2, pp. 1978-1992, Feb. 2020, doi: 10.1109/TPEL.2019.2917653.
- [31] Marin, L., Sumner, M., Muñoz-Carpintero, D., Köbrich, D., Pholboon, S., **Sáez, D.**, Núñez, A. “Hierarchical Energy Management System for Microgrid Operation Based on Robust Model Predictive Control”, *Energies* 2019, 12, 4453.
- [32] Palma-Behnke, R., Jiménez, G., **Sáez, D.**, Montedonico, M., Mendoza, P., Hernández, R., Muñoz, C. “Lowering electricity access barriers by means of participative processes applied to microgrid solutions: The Chilean case”, in *Proceedings of the IEEE*, vol. 107, no. 9, pp. 1857-1871, Sept. 2019..
- [33] Llanos, J., Olivares, D., Simpson-Porco, J., Kazerani, M., **Sáez, D.**, “A Novel Distributed Control Strategy for Optimal Dispatch of Isolated Microgrids Considering Congestion”, *IEEE Transactions on Smart Grid*, vol. 10, no. 6, pp. 6595-6606, Nov. 2019, doi: 10.1109/TSG.2019.2908128.
- [34] Marín, L., Cruz, N., **Sáez, D.**, Sumner, M., Núñez, A. “Prediction Interval Methodology based on Fuzzy Numbers and its Extension to Fuzzy Systems and neural networks”, *Expert Systems with Applications*, Vol. 119, pp. 128-141, 2019.
- [35] Burgos-Mellado, C., Costabeber, A., Sumner, M., Cardenas, R., **Sáez, D.**, "Small-Signal Modelling and Stability Assessment of Phase-Locked Loops in Weak Grids", *Energies*, Vol. 12, no. 7, pp. 1996-1073, 2019.
- [36] Burgos-Mellado, C., Cárdenas, R., **Sáez, D.**, Costabeber, A., Sumner, M. “A Control Algorithm Based on the Conservative Power Theory for Cooperative Sharing of Imbalances in 4-Wire Systems”, *IEEE Transactions on Power Electronics*, vol. 34, no. 6, pp. 5325-5339, 2019.
- [37] Santis, P., **Sáez, D.**, Cárdenas, R., Nuñez, A., "Pareto-Based Modulated-Model-Predictive Control Strategy for Power Converter Applications", *Electric Power System Research*, Elsevier, Vol. 171, pp. 158-174, 2019.
- [38] Gutiérrez, L., Muñoz-Carpintero, D., Valencia, F., **Sáez, D.**, “A New Method for Identification of Fuzzy Models with Controllability Constraints,” *Applied Soft Computing*, Vol. 73, pp. 254-262, 2018.58-174, 2019.
- [39] Jaramillo, F., Orchard, M., Muñoz, C., Antileo, C., **Sáez, D.**, Espinoza, P., “On-line estimation of the aerobic phase length for partial nitrification processes in SBR based on features extraction and SVM classification”, *Chemical Engineering Journal*, Vol. 331, pp. 114-123, 2018.
- [40] Bayas, A., Skrijanc, I., Sáez, D., “Design of Fuzzy Robust Control Strategies for a Distributed Solar Collector Field”. *Applied Soft Computing*, Vol. 71, pp. 1009-1019, 2018.
- [41] Donoso, F., Cárdenas, R., Mora, A., Angulo, A., **Sáez, D.**, Rivera, M., “Finite-Set Model Predictive Control Strategies for a 3L-NPC Inverter Operating with Fixed Switching Frequency”. *IEEE Transactions on Industrial Electronics*, Vol 65., No. 5, pp. 3954-3965, May 2018.

- [42] Llanos, J., Morales, R., Núñez, A., **Sáez, D.**, Lacalle, M., Marín, L., Hernández, R., Lanas, F. “Load Estimation for Microgrid Planning based on a Self-Organizing Map Methodology”, *Applied Soft Computing*, Vol. 53, pp. 323–335, 2017.
- [43] Roje, T., Marín, L., **Sáez, D.**, Orchard, M., Jiménez, G., “Consumption modeling based on Markov chains and Bayesian networks for a demand side management design of isolated microgrids”, *International Journal of Energy Research*, Vol. 41, pp. 365-376, 2017.
- [44] Burgos, C., Hernández, C., Cárdenas, R., **Sáez, D.**, Sumner, M., Costabeber, A., Morales, H., “Experimental Evaluation of a CPT-Based 4-Leg Active Power Compensator for Distribution Generation”, *IEEE Journal of Emerging and Selected Topics in Power Electronics*, Vol. 5, No. 2, pp. 747-759, June 2017.
- [45] Ponce, C., Sáez, D., Bordons, C., Núñez, A., “Dynamic simulator and model predictive control of an integrated solar combined cycle plant”, *Energy*, Vol. 109, pp. 974-986. 2016.
- [46] Cortés, C., Rey, P., **Sáez, D.**, “Selected papers from the eighth Triennial Symposium on Transportation Analysis (TRISTAN VIII): Special Issue on Advances in transportation and logistics”, Editorial in *Transportation Research Part C*, Vol. 70, pp. 98-99, 2016.
- [47] L. Tarisciotti, G. Lo Calzo, A. Gaeta, P. Zanchetta, F. Valencia and D. Sáez, "A Distributed Model Predictive Control Strategy for Back-to-Back Converters," in *IEEE Transactions on Industrial Electronics*, vol. 63, no. 9, pp. 5867-5878, Sept. 2016, doi: 10.1109/TIE.2016.2527693.
- [48] Valencia, F., Collado, J., **Sáez, D.**, Marín, L., “Robust Energy Management System for a Microgrid Based on a Fuzzy Prediction Interval Model”, *IEEE Transactions on Smart Grid*, Vol. 7, No. 3, pp. 1486-1494, 2016.
- [49] Ahumada, C., Cárdenas, R., **Sáez, D.**, Guerrero, J., “Secondary Control Strategies for Frequency Restoration in Islanded Microgrids with Consideration of Communication Delays”, *IEEE Transactions on Smart Grid*, Vol. 7, No. 3, pp. 1430-1441, 2016.
- [50] Burgos, C., Orchard, M., Kazerani, M., Cárdenas, R., **Sáez, D.**, “Particle-Filtering-Based Estimation of Maximum Available Power State in Lithium-Ion Batteries”, *Applied Energy*, Vol. 161, pp. 349-363, 2016.
- [51] Valencia, F., **Sáez, D.**, Collado, J. Avila, F., Marquez, A., Espinosa, J. “Robust Energy Management System Based on Interval-Fuzzy-Models”, *IEEE Transactions on Control Systems Technology*, Vol. 24, No. 1, pp. 140–157, 2016.
- [52] Sáez, D., Ávila, F., Olivares, D., Cañizares, C., Marín, L. “Fuzzy Prediction Interval Models for Forecasting Renewable Resources and Loads in Microgrids”, *IEEE Transactions on Smart Grid*, Vol. 6, No. 2, pp. 548-556, 2015.
- [53] Burgos, C., **Sáez, D.**, Orchard, M., Cárdenas, R. “Fuzzy Modelling for the State-of-charge Estimation of Lead-acid Batteries”, *Journal of Power Sources*, Vol. 274, pp. 355-366, 2015.
- [54] Muñoz, D., **Sáez, D.**, Cortés, C.E., Núñez, A., “A Methodology based on Evolutionary Algorithms to Solve Dynamic Pickup and Delivery Problem under Hybrid Predictive Control Approach”, *Transportation Science*, Vol. 49, No. 2, pp. 239-253, 2015.
- [55] Núñez, A., C.E. Cortés, D. Sáez, B. De Schutter, M. Gendreau, “Multiobjective Model Predictive Control for Dynamic Pickup and Delivery Problems”, *Control Engineering Practice*, Vol. 32, pp. 73-86, 2014.
- [56] Ponce, C., **Sáez, D.**, Núñez, A. “Fuzzy Predictive Control Strategy for a Distributed Solar Collector Plant”, *IEEE Latin America Transactions*, Vol. 12, N°4, pp. 626-633, 2014.
- [57] Núñez, A., De Schutter, B., **Sáez, D.**, Škrjanc, I., “Hybrid-Fuzzy Modeling and Identification”, *Applied Soft Computing*, Vol. 17, pp. 67-78, 2014.

- [58] Muñoz, J. C., Cortés, C., Giesen, R., **Sáez, D.**, Delgado, F., Valencia, F., Cipriano, A., “Comparison of Dynamic Control Strategies for Transit Operations”, *Transportation Research Part C: Emerging Technologies*, Vol. 28, pp. 101–113, 2013.
- [59] Palma-Behnke, R., Benavides, C., Lanás, F., Severino, B., Reyes, L., Llanos, J., **Sáez, D.**, “A Microgrid Energy Management System Based on the Rolling Horizon Strategy”, *IEEE Transactions on Smart Grid*, Vol. 4, No. 2, pp. 996-1006, 2013.
- [60] Matus, M., **Sáez, D.**, Favley, M., Suazo, C., Moya, J., Jimenez-Estevez, G., Palma-Behnke, R., Olguin, G., Jorquera, P., “Identification of Critical Spans for Monitoring Systems in Dynamic Thermal Rating”, *IEEE Transactions on Power Delivery*, Vol. 27, No. 2, pp. 1002-1009, 2012.
- [61] Milla, F., **Sáez, D.**, Cortés, C.E., Cipriano, A., “Bus-stop Control Strategies Based on Fuzzy Rules for the Operation of a Public Transport System”, *IEEE Transactions on Intelligent Transportation Systems*, Vol. 13, No. 3, pp. 1394-1403, 2012.
- [62] **Sáez, D.**, Cortés, C.E., Milla, F., Riquelme, M., Núñez, A., Tirachini, A., “Hybrid Predictive Control Strategy for a Public Transport System with Uncertain Demand”, *Transportmetrica*, Vol. 8, No. 1, pp. 61-86, 2012.
- [63] Cortés, C.E., **Sáez, D.**, Milla, F., Riquelme, M., Núñez, A. “Hybrid Predictive Control for Real-time Optimization of Public Transport System’ Operations based on Evolutionary Multiobjective Optimization”, *Transportation Research Part C-Emerging Technologies*, Vol. 18, No. 5, pp. 757-769, 2010.
- [64] Núñez, A., **Sáez, D.**, Oblak, S., Skrjanc, I. “Fuzzy-Model-Based Hybrid Predictive Control”. *ISA Transactions*, Vol. 48, N° 1, pp. 24-31, 2009.
- [65] Cortés, C.E., **Sáez, D.**, Núñez, A., Muñoz-Carpintero, D. “Hybrid Adaptive Predictive Control for a Dynamic Pick-up and Delivery Problem”. *Transportation Science*, Vol. 43, N°1, 2009, pp. 27-42, 2009.
- [66] **Sáez D.**, Berenguel M., “Applications on Hybrid Predictive Control”, *International Journal of Adaptive Control and Signal Processing*, Vol.22, N°2, pp. 101-102, 2008.
- [67] Causa, J., Karer, G., Núñez, A., **Sáez, D.**, Skrjanc, I., Zupancic, B. “Hybrid Fuzzy Predictive Control based on Genetic Algorithm for the Temperature Control of a Batch Reactor”. *Computers & Chemical Engineering*, Vol. 32, N°12, pp. 3254-3263, 2008.
- [68] **Sáez, D.**, Cortés C.E., Núñez, A. “Hybrid Adaptive Predictive Control for the Multi-Vehicle Dynamic Pickup and Delivery Problem based on Genetic Algorithms and Fuzzy Clustering”. *Special Issue “Real-time Supply Chain Management” of Computers & Operations Research*, Vol 35, N°11, pp. 3412-3438, 2008.
- [69] Cortés, C.E., Núñez, A., **Sáez, D.**, “Hybrid Adaptive Predictive Control for a Dynamic Pickup and Delivery Problem including Traffic Congestion”. *International Journal of Adaptive Control and Signal Processing*. Vol. 22, N° 2, pp. 103-123, 2008.
- [70] **Sáez, D.**, Zúñiga, R., Cipriano, A. “Adaptive Hybrid Predictive Control for a Combined Cycle Power Plant Optimization” *International Journal of Adaptive Control and Signal Processing*. Vol. 22, N° 2, pp.198-220, 2008.
- [71] **Sáez, D.**, Milla, F., Vargas L. “Fuzzy Predictive Supervisory Control based on Genetic Algorithms for Gas Turbines of Combined Cycle Power Plants”, *IEEE Transactions on Energy Conversion*, Vol. 22, N° 3, pp. 689- 696, 2007.
- [72] **Sáez, D.**, Ordys, A., Grimble, J. “Design of a Supervisory Predictive Controller and its Applications to Thermal Power Plants”, *Optimal Control Applications and Methods*, Wiley Journal. Vol. 26, N° 4, pp. 169-198, 2005.
- [73] Corona, A., **Sáez, D.**, Agosín, E. “Effect of Water Activity on Gibberellic Acid Production by *Gibberella Fujikuroi* Under Solid State Fermentation Conditions”. *Process Biochemistry*, Vol. 40, N° 8, pp. 2655-2658, 2005.

- [74] Flores, A., **Sáez, D.**, Araya, J., Berenguel, M., Cipriano, A. “Fuzzy Predictive Control of a Solar Power Plant”. IEEE Transactions on Fuzzy Systems, Vol. 13, N° 1, pp. 58-68, 2005.
- [75] **Sáez, D.**, Book Review “Genetic Algorithms”, Authors: K. F. Man, K. S. Tang, S. Kwong, Springer-Verlag, ISBN 1-85233-072-4, International Journal of Adaptive Control and Signal Processing, Vol. 19, N°1, pp. 59, 2005.
- [76] **Sáez, D.**, Book Review “Fuzzy Control Systems Design and Analysis. A Linear Matrix Inequality Approach”, Authors: K. Tanaka and H. Wang, Wiley Interscience, ISBN 0-471-32324-1. International Journal of Adaptive Control and Signal Processing, Vol. 19, N°1, pp. 61-62, 2005.
- [77] Hernández, S., **Sáez, D.**, Mery, D. “Neuro-Fuzzy Method for Automated Defect Detection in Aluminium Castings”. Lecture Notes in Computer Science, LNCS 3212 pp. 826-833, 2004, ISSN 0302-9743, ISBN 3-540-23240-0.
- [78] **Sáez, D.**, Cipriano, A. “A New Method for Structure Identification of Fuzzy Models and its Application to a Combined Cycle Power Plant”. Engineering Intelligent Systems for Electrical Engineering and Communications, Vol. 9, N° 2, pp. 101-107, 2001.
- [79] **Sáez, D.**, Book Review “Non-Linear Model Based Process Control”, Authors R. Ansari and M. Tadé, Springer-Verlag, ISBN 1430-9491, International Journal of Adaptive Control and Signal Processing, Vol. 15, N°4, pp. 427, 2001.

▪ OTHER JOURNALS

- [1] Céspedes, S., Daniele, L., **Sáez, D.** & Bustos, J. (2022). Open Water: Sistema abierto experto para apoyar la gestión de recursos hídricos mediante monitoreo de bajo costo en tiempo real de aguas superficiales y subterráneas. Revista Bits de Ciencia, Núm. 23, pág. 34-41.
- [2] Rodríguez-Seeger, C., **Sáez-Hueichapan, D.**, Fuenzalida-Artigas, A., Ñancupil-Quirilao, I., Lienqueo, M.E., Contreras-Painemal, C. & Díaz-Alvarado, F. (2021). Decolonizing the training of engineers and scientists: the case of the Faculty of Physical Sciences and Mathematics at Universidad de Chile. *Scholarship of Teaching and Learning in the South*. 5(1): 87-106. DOI: 10.36615/sotls.v5i1.154.
- [3] Vargas C., Morales, R., **Sáez D.** et al. (2019) Methodology for Microgrid/Smart Farm Systems: Case of Study Applied to Indigenous Mapuche Communities. In: Corrales J., Angelov P., Iglesias J. (eds) *Advances in Information and Communication Technologies for Adapting Agriculture to Climate Change II*. AACC 2018. *Advances in Intelligent Systems and Computing*, vol 893. Springer, Cham. https://doi.org/10.1007/978-3-030-04447-3_6

▪ CONFERENCES

- [1] L. Jiménez, O. Cartagena, J. Ocaranza, A. Navas-Fonseca, and **D. Sáez**, “Fuzzy Interval-Based Fault Detection for Water Consumption Profiles From Isolated Communities,” 2024 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), vol. 12. IEEE, pp. 1–8, Jun. 30, 2024, Yokohama, Japan. doi: 10.1109/fuzz-ieee60900.2024.10612213.
- [2] O. Cartagena, **D. Sáez**, and I. Skrjanc, “Two-Stages Interval Fuzzy Model for Forecasting Wind Power in Microgrids,” 2024 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE). IEEE, pp. 1–8, Jun. 30, 2024, Yokohama, Japan. doi: 10.1109/fuzz-ieee60900.2024.10612141.
- [3] R. Godoy-Garrido, L. Reyes-Chamorro, R. Arévalo and **D. S. Hueichapan**, "Evaluation of Integrated-Energy Projects: A Simplified Tool for Non-Expert Project Developers," 2023 IEEE

- PES Innovative Smart Grid Technologies Latin America (ISGT-LA), San Juan, PR, USA, 2023, pp. 1-5, doi: 10.1109/ISGT-LA56058.2023.10328320.
- [4] J. Rojas, C. Ahumada, Y. A. Esquivel, R. Cárdenas and **D. Sáez**, "Feed-Forward compensation for the Reduction of Vibrations in Ship's Generators," 2023 IEEE Energy Conversion Congress and Exposition (ECCE), Nashville, TN, USA, 2023, pp. 1574-1581, doi: 10.1109/ECCE53617.2023.10362228.
- [5] C. Muñoz, J. Huircan, **D. Sáez**, R. Medina, O. Poblete, O. Villagra, B. Cartes, J. Silva, M. Alegría. "Participatory Development in Indigenous Rural Schools for Adopting IoT in Agrifood", CAFE 2023, 2023 IEEE Conference on AgriFood Electronics, 25– 27 September 2023, Torino, Italy.
- [6] L. Rojas, J. Ocaranza, O. Cartagena, **D. Sáez**, L. Daniele and C. Ahumada, "Robust Energy-Water Management System with Prediction Interval Based on Deep Learning," 2023 International Joint Conference on Neural Networks (IJCNN), Gold Coast, Australia, 2023, pp. 1-9, doi: 10.1109/IJCNN54540.2023.10191862.
- [7] C. Ahumada, L. Tarisciotti, D. Sepúlveda and **D. Sáez**, "Model Predictive Control for the Reduction of Marine Propellers Vibrations," 2022 IEEE Energy Conversion Congress and Exposition (ECCE), Detroit, MI, USA, 2022, pp. 1-8, doi: 10.1109/ECCE50734.2022.9947717.
- [8] Bustos, R., Marin, L., Navas, A., **Sáez, D.**, Jiménez, G. "Demand Side Management for Microgrids based on Fuzzy Prediction Intervals", IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2022), July 18-23, 2022, Padua, Italy.
- [9] A. Endo, O. Cartagena, J. Ocaranza, **D. Sáez**, C. Muñoz. "Fuzzy and Neural Prediction Intervals for Robust Control of a Greenhouse", IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2022), July 18-23, 2022, Padua, Italy.
- [10] M. Nova, D. Muñoz-Carpintero and D. Sáez, "Fuzzy Model Predictive Control for Takagi & Sugeno Systems with Optimised Prediction Dynamics," 2022 European Control Conference (ECC), London, United Kingdom, 2022, pp. 1790-1796, doi: 10.23919/ECC55457.2022.9838066.
- [11] A. Navas-Fonseca, C. Burgos-Mellado, J. Gomez, J. Llanos, E. Espina, **D. Sáez**, M. Sumner, "Distributed Predictive Control using Frequency and Voltage Soft Constraints in AC Microgrids including Economic Dispatch of Generation," 47th Annual Conference of the IEEE Industrial Electronics Society (IECON), Toronto, Canada, 2021.
- [12] Espina, E., Navas, A., Gómez, J., Simpson-Porco, J., Cárdenas, R., **Sáez, D.**, Mehrdad, K. "Experimental Performance Evaluation of a Distributed Secondary Control Strategy for Hybrid AC/DC-Microgrids in the event of Communication Loss/Delay", 23rd European Conference on Power Electronics and Applications, 2021.
- [13] Navas, A., Burgos, C., Espina, E., Rute, E., **Sáez, D.**, Sumner, M., "Distributed Predictive Secondary Control for Voltage Restoration and Economic Dispatch of Generation for DC Microgrids," 2021 IEEE Fourth International Conference on DC Microgrids (ICDCM), 2021, pp. 1-6, doi: 10.1109/ICDCM50975.2021.9504612.
- [14] Labra, R, Basáez, C., Sáez, D. & Rodríguez, C "Conexión natural desde metodologías de Co-diseño de cultivo vegetal tecnológico indígena". Arts imagining communities to come. Cumulus conference proceedings Guayaquil. Cumulus Association of Universities and Colleges of Art, Design and Media, 8-11 November, 2021.
- [15] Espina, E., Burgos, C., Gómez, J. S., Llanos, J., Rute, E., Navas, A., Martínez, M., **Sáez, D.**, Cárdenas, R., (2020). "Experimental Hybrid AC/DC-Microgrid Prototype for Laboratory Research". In: 2020 22st European Conference on Power Electronics and Applications (EPE'20 ECCE Europe).

- [16] Muñoz-Carpintero, D., Parra, S., Cartagena, O., **Sáez, D.**, Marin, L., Skrjanc, I. “Fuzzy Interval Modelling based on Joint Supervision”, IEEE International Conference on Fuzzy Systems, WCCI 2020, Glasgow, UK, 19-24 July 2020.
- [17] Endo, A., Cartagena, O., **Sáez, D.**, Muñoz-Carpintero, D., “Predictive Control based on Fuzzy Optimization for Multi-Room HVAC Systems”, IEEE International Conference on Fuzzy Systems, WCCI 2020, Glasgow, UK, 19-24 July 2020.
- [18] Pekaslan, D., Wagner, C., Garibaldi, J. M., Marin L. G., **Sáez, D.**, "Uncertainty-Aware Forecasting of Renewable Energy Sources," 2020 IEEE International Conference on Big Data and Smart Computing (BigComp), Busan, Korea (South), 2020, pp. 240-246, doi: 10.1109/BigComp48618.2020.00-68.
- [19] Llanos, J., Gómez, J., **Sáez, D.**, Olivares, D. Simpson-Porco, J., “Economic Dispatch by Secondary Distributed Control in Microgrids “, EPE'19 ECCE Europe 21st European Conference on Power Electronics and Applications, Genova, Italy, September 2-6, 2019.
- [20] Cruz, N., Marin, L. **Sáez D.**, “Prediction Intervals with LSTM Networks Trained by Joint Supervision”, International Joint Conference on Neural Networks, IJCNN 2019, Budapest, Hungary, July 14-19, 2019.
- [21] Llanos, J., Sáez, D., Economic Dispatch for Optimal Management of Isolated Microgrids, IEEE CONCAPAN XXXVI, Costa Rica, 07 March 2019, ISBN:978-1-5386-5936-6 DOI: 10.1109/CONCAPAN.2016.7942382;
- [22] Cruz, N., Marín, L., **Sáez, D.**, “Neural Network Prediction Interval based on Joint Supervision”. IEEE International Joint Conference on Neural Networks, WCCI 2018, Rio de Janeiro, Brazil, 8-13 July 2018.
- [23] Cartagena, O., Muñoz-Carpintero, D., **Sáez, D.**, “A Robust Predictive Control Strategy for Building HVAC Systems Based on Interval Fuzzy Models”, IEEE International Conference on Fuzzy Systems, WCCI 2018, Rio de Janeiro, Brazil, 8-13 July 2018.
- [24] Caquilpan, V., **Sáez, D.**, Hernández, R., Llanos, J., Roje, T., Nuñez, A. “Load Estimation Based on Self-Organizing Maps and Bayesian Networks for the Microgrids Design in Rural Zones”, IEEE PES Innovative Smart Grid Technologies Latin America, ISGT-LA 2017, Quito, Ecuador, September 20-22, 2017.
- [25] Morales, R., **Sáez, D.**, Marin, L., Nuñez, A., “Microgrid Planning based on Fuzzy Interval Models of Renewable Resources”, IEEE International Conference on Fuzzy Systems, WCCI 2016, Vancouver, Canada, July 24-29, 2016.
- [26] Andonovski, G., Bayas, **Sáez, D.**, Skrjanc, I., “Robust Evolving Cloud-based Control for the Distributed Solar Collector Field”, IEEE International Conference on Fuzzy Systems, WCCI 2016, Vancouver, Canada, July 24-29, 2016.
- [27] Marin, L., Valencia, F., **Sáez, D.**, “Prediction Interval based on type-2 Fuzzy Systems for Wind Power Generation and Loads in Microgrid Control Design”, IEEE International Conference on Fuzzy Systems, WCCI 2016, Vancouver, Canada, July 24-29, 2016.
- [28] Cortés, C., **Sáez D.**, Valencia, F., Clavería, R., Milla, F. “Distributed fuzzy control applied to a two-line transit system with transfers” LAND-TRANSLOG, Joint Workshop on Location and Network Design – Transportation and Logistics, Santa Cruz, Chile, March 13-17, 2016.
- [29] Veltman F., Marin L., **Sáez D.**, Nuñez, A., Gutiérrez, L., “Prediction Interval Modeling Tuned by an Improved Teaching Learning Algorithm Applied to Load Forecasting in Microgrids”, 2015 IEEE Symposium Series on Computational Intelligence, SSCI 2015, Cape Town, South Africa, December 8-10, 2015.
- [30] Ávila, F., Cañizares, C., **Sáez, D.**, and Valencia, F., “Load Modelling Using Affine Arithmetic for Demand Side Management”, IEEE/PES Innovative Smart Grid Technologies Latin America, Montevideo, Uruguay, October 5-7, 2015

- [31] Morales, R., Valencia, F., **Sáez, D.**, Lacalle, M., “Supervisory Fuzzy Predictive Control for a Concentrated Solar Power Plant”, 19th IFAC World Congress, Cape Town, South Africa, August 24-29, 2014.
- [32] Gutiérrez, L., Valencia, F., **Sáez, D.**, “New Fuzzy Model with Second Order Terms for the Design of a Predictive Control Strategy”, 2014 IEEE International Conference on Fuzzy Systems, WCCI 2014, Beijing, China, July 6-11, 2014.
- [33] Avila, F., **Sáez, D.**, Jiménez-Estévez, G., Reyes L., Núñez, A. “Fuzzy Demand Forecasting in a Predictive Control Strategy for a Renewable-energy based Microgrid”, Proceedings of the European Control Conference ECC 2013, Zurich, Switzerland, July 17-19, 2013.
- [34] Vargas-Serrano, A., **Sáez, D.**, Reyes, L., Severino, B., Palma-Behnke, R., Cárdenas-Dobson, R., “Design and Experimental Validation of a Dual Mode VSI Control System for a Micro-grid with Multiple Generators”, Proceedings of the 38th Annual Conference of the IEEE Industrial Electronics Society, Montreal, Canada, October 24-28, 2012.
- [35] Bustos, G., Vargas, L., Milla, F., **Sáez, D.**, Zareipou, H., “Comparison of Fixed Speed Wind Turbines Models: A Case Study”, Proceedings of the 38th Annual Conference of the IEEE Industrial Electronics Society, Montreal, Canada, October 24-28, 2012.
- [36] Llanos, J., **Sáez, D.**, Palma-Behnke, R., Núñez, A., Jiménez-Estévez, G. “Load Profile Generator and Load Forecasting for a Renewable Based Microgrid Using Self Organizing Maps and Neural Networks”, 2012 International Joint Conference on Neural Networks, Brisbane, Australia, June 10-15, 2012.
- [37] Núñez, A., **Sáez, D.**, Škrjanc, I., De Schutter, B., “A New Method for Hybrid-fuzzy identification”, Proceedings of the 18th IFAC World Congress, Milano, Italy, August 28 - September 2, 2011.
- [38] Núñez, A., **Sáez, D.**, Cortés, C.E., Gendreau, M., De Schutter, B., “Multiobjective model predictive control applied to a dial-a-ride system”, Proceedings of the 90th Annual Meeting of the Transportation Research Board, Washington, USA, January 23-27, 2011.
- [39] Palma-Behnke R., Benavides C., Aranda E., Llanos J., **Sáez D.** “Energy Management System for a Renewable based Microgrid with a Demand Side Management Mechanism”, IEEE Symposium Series on Computational Intelligence - SSCI 2011, Paris, France, April 11-15, 2011.
- [40] Muñoz-Carpintero, D., **Sáez, D.**, Škrjanc, I. “Hybrid Predictive Control Design with Mixed Inputs based on PSO and its Application for Control of a Batch Reactor”, IEEE WCCI2010, IEEE Congress on Evolutionary Computation, Barcelona, July 20-25, 2010.
- [41] Muñoz-Carpintero, D., Núñez, A., **Sáez, D.**, Cortés, C.E. “Evolutionary Algorithms and Fuzzy Clustering for Control of a Dynamic Vehicle Routing Problem Oriented to User Policy”, IEEE WCCI2010, IEEE Congress on Evolutionary Computation, Barcelona, July 20-25, 2010.
- [42] Muñoz, J., Giesen, R., Delgado, F., Cipriano, A., Cortés, C.E., **Sáez, D.**, Valencia, F. “Comparison of control strategies for real-time optimization of public transport systems”, Triennial Symposium on Transportation Analysis (TRISTAN 2010), Tromso, Norway, June 20-25, 2010.
- [43] Núñez, A., Cortés, C., Sáez, D., Gendreau, M. “Multiobjective Hybrid Predictive Control Applied to a Dial-A-Ride System”. TRANSLOG, Transportation and Logistics Workshop, December 8-11, 2009.
- [44] Milla, F., **Sáez, D.**, Vargas, L. “Combined Cycle Power Plant Optimization Based on Supervisory Predictive Controllers”, European Control Conference ECC 2009, Budapest, Hungary, August 23-26, 2009.

- [45] Otarola, G., Cortés, C.E., **Sáez, D.** “Hybrid Predictive Control Based on Traffic Signal Priority for Public Transport Systems”, European Control Conference ECC 2009, Budapest, Hungary, August 23-26, 2009.
- [46] **Sáez, D.**, Cortés, C.E., Pillajo, A. “Real-time Control Strategies for a Public Transport System based on Fleet Assignment Operational Schemes”, Fourth International Workshop on Freight Transportation and Logistics, Odysseus 2009, Çeşme, İzmir, Turquía, May 26-29, 2009.
- [47] Cortés, C.E., **Sáez, D.**, Núñez, A., Gendreau, M. “Hybrid Predictive Control for the Dynamic Pick-up and Delivery Problem with Variable Fleet Size based on an Evolutionary Multiobjective Optimization Approach (EMO)”. International Federation of Operational Research Societies Conference, IFORS 2008, Sandton, South Africa, July 13-18, 2008.
- [48] Causa, J., Karer, G., Núñez, A., **Sáez, D.**, Skrjanc, I., Zupancic, B. “Hybrid Fuzzy Predictive Control of a Batch Reactor using Branch and >Bound and a Genetic Algorithm Approach”, 17th IFAC World Congress, Seoul, Korea, pp. 8381-8386, July 6-11, 2008.
- [49] Núñez, A., **Sáez, D.**, Cortés, C.E. “Hybrid Predictive Control for the Vehicle Dynamic Routing Problem based on Evolutionary Multiobjective Optimization (EMO)”. 17th IFAC World Congress, Seoul, Korea, pp. 13085-13090, July 6-11, 2008.
- [50] Torres, P., **Sáez, D.** “Type-2 Fuzzy Logic Identification Applied to the Modeling of a Robot Hand”, 2008 IEEE World Congress on Computational Intelligence (WCCI2008), Hong Kong, China, pp. 854-861, June 1-6, 2008. Seleccionado para Best Student Paper de la conferencia.
- [51] Medina, P., **Sáez, D.**, Roman, R. “On Line Fault Detection and Isolation in Gas Turbines Combustion Chambers”, ASME Turbo Expo 2008: Power for Land, Sea and Air, Berlin, Germany, June 9-13, 2008.
- [52] **Sáez, D.**, Cortes, C., Núñez, A., Riquelme, M., Milla, F., Otarola, G. “Hybrid Predictive Control for Real-Time Optimization of Public Transport Systems’ Operations”. Bus Rapid Transit International Workshop, Santiago, Chile, August 26-29, 2008.
- [53] Núñez, A., Cortés, C.E., **Sáez, D.**, Riquelme, M., “Hybrid Predictive Control for Real-time Optimization of Public Transport System’ Operations based on Evolutionary Multiobjective Optimization”. 10th International Conference on Application of Advanced Technologies in Transportation, Greece, pp. 2326-2331, May 27-31, 2008.
- [54] **Sáez, D.**, Núñez, A., Oblak, S., Skrjanc, I. “Hybrid Fuzzy Predictive Control based on Evolutionary Multiobjective Optimization”. Eurosim 2007, Ljubljana, Slovenia. September 9-13, 2007.
- [55] **Sáez, D.**, Milla, F., Ordys, A. “Hybrid Predictive Supervisory Control Based on Genetic Algorithms for a Gas Turbine of Combined Cycle Power Plants” European Control Conference 2007, Kos, Greece, July 2-5, 2007.
- [56] Cortés, C.E., **Sáez, D.**, Sáez, E., Núñez, A., Tirachini, A. “Hybrid Predictive Control Strategy for a Public Transport System with Uncertain Demand”, Sixth Triennial Symposium on Transportation Analysis TRISTAN 2007, Phuket Island, Thailand, June 10-15, 2007.
- [57] **Sáez, D.**, Uribe, R. “Methodological Innovation in Electrical Engineering Department Control Systems Course”, 3rd International CDIO Conference, MIT, Cambridge, Massachusetts, June 11-14, 2007.
- [58] **Sáez, D.**, Ordys, A. “Comparison of Optimal Control Strategies for Supervisory and Regulatory Level”, International Conference Control 2006 Glasgow, Scotland, 30th August to 1st September, N° 249, 6 pages, 2006.
- [59] Núñez, A., Oblak, S., **Sáez, D.**, Skjranc, I. “Hybrid Predictive Control based on Fuzzy Model”. 2006 IEEE World Congress on Computational Intelligence, International Conference on Fuzzy Systems Vancouver, Canada, pp. 9079-9085, July 16-21, 2006.

- [60] Solis, J., **Sáez, D.**, Estévez, P. “Particle Swarm Optimization-based Fuzzy Predictive Control Strategy”. 2006 IEEE World Congress on Computational Intelligence, International Conference on Fuzzy Systems Vancouver, Canada, pp. 8525- 8530, July 16-21, 2006.
- [61] Chacón, G., Ruiz del Solar, J., **Sáez, D.** “Fuzzy Sliding Mode Control based on Takagi & Sugeno Model Design and its application to a Simulated Robot Hand”, IEEE Latin American Robotics Symposium, Santiago, October 26-27, 2006.
- [62] **Sáez, D.**, Zúñiga, R. “Takagi-Sugeno Fuzzy Model Structure Selection based on New Sensitivity Analysis”, 2005 IEEE International Conference on Fuzzy Systems FUZZ-IEEE 2005, Reno, USA, pp. 501-506, May 22-25, 2005.
- [63] Hernández, S., **Sáez, D.**, Mery, D., Da Silva, R., Siqueira, M. “Automated Defect Detection in aluminium Castings and Welds using Neuro-fuzzy Classifiers”. Proceedings of 16th World Conference on Non-Destructive Testing (WCNDT 2004), Montreal, August 30 – September 03, 2004.
- [64] Alayón, M., **Sáez, D.**, Veiga, R. “Comparative Analysis of Neural Predictive Controllers and Its Application to a Laboratory Tank System”. International Joint Conference on Neural Networks IJCNN2004, Budapest, Hungary, July 25-29, 2004.
- [65] **Sáez, D.**, Zúñiga, R. “Cluster Optimization for Takagi & Sugeno Fuzzy Models and Its Application to a Combined Cycle Power Plant Boiler”, American Control Conference, ACC’ 2004, Boston, USA, June 30 – July 2, 2004.
- [66] **Sáez, D.**, Kemerer, E. “Fuzzy Predictive Strategies and its Application to a Laboratory Tank”. Proceedings of the European Control Conference, ECC’ 2003, University of Cambridge, UK, pp. 1716-1781, September 1-4, 2003.
- [67] Alayon, M., **Sáez, D.**, Veiga, R. “Analysis and Design of Control Strategies based on Neural Networks”. Proceedings of the IASTED International Conference Intelligent Systems and Control, ISC 2003. Salzburg, Austria, pp. 212-217, June 25-27, 2003.
- [68] Binstock, M., **Sáez, D.**, Aignstein, M. “Trajectory Control based on Fuzzy Logic for a Robotic Manipulator”. Proceedings of the IASTED International Conference Intelligent Systems and Control, ISC 2003, Salzburg, Austria, pp. 168-173, June 25-27, 2003.
- [69] **Sáez, D.**, Cipriano, A. “Design of a Supervisory Predictive Controller based on Fuzzy Models”. Proceedings of the 10th IEEE International Conference on Fuzzy Systems, FUZZ-IEEE’2001, Melbourne, Australia, December 2-5, 2001.
- [70] **Sáez, D.**, Cipriano, A. “Fuzzy Models based Economic Predictive Control for a Combined Cycle Power Plant Boiler”. Proceedings of the 1999 IEEE International Symposium on Intelligent Control, Intelligent Systems & Semiotics, ISIC’99, Cambridge, USA, pp. 417-422, September 15-17, 1999.
- [71] **Sáez, D.**, Cipriano, A. “Economic Optimal Control for a Combined Cycle Power Plant Boiler”. Proceedings of the European Control Conference, ECC’99, Karlsruhe, Germany, August 31- September 3, 1999.
- [72] **Sáez, D.**, Cipriano, A. “Fuzzy Modeling of a Combined Cycle Power Plant”. Proceedings of the 8th International Conference on Fuzzy Systems, FUZZ-IEEE’99, Seoul, Korea, pp. 1186-1190, August 22-25, 1999.
- [73] **Sáez, D.**, Cipriano, A. “Economical Optimal Control with Environmental Constraints for Combined Cycle Power Plants”. Proceedings of the 24th Annual Conference of the IEEE Industrial Electronics Society, IECON’98, Aachen, Germany, pp. 640-645, August 31 – September 4, 1998.
- [74] **Sáez, D.**, Sanz, M., Cipriano, A. “Prediction of the Evolution of Water Chemical Properties in the Cycle of a Coal Power Plant using Artificial Neural Networks”. Proceedings of the IEEE

International Joint Conference on Neural Networks, IJCNN'98, Anchorage, Alaska, USA, pp. 1981-1986, May 5-8, 1998.

- [75] **Sáez, D.**, Cipriano, A. “Fuzzy Linear Quadratic Regulator Applied to the Real-time Control of an Inverted Pendulum”. Proceedings of the 5th IFAC Workshop on Algorithms and Architectures for Real-Time Control, Cancun, Mexico, pp. 185-190, April 15-17, 1998.
- [76] **Sáez, D.**, Cipriano, A. “Design of Fuzzy Model based Predictive Controllers and its Application to an Inverted Pendulum”. Proceedings of the Sixth IEEE International Conference on Fuzzy Systems, FUZZ-IEEE'97, Barcelona, pp. 915-919, July 1-5, 1997.
- [77] Cipriano, A., **Sáez, D.** “Fuzzy Generalized Predictive Control and its Application to an Inverted Pendulum”. Proceedings of the 22nd Annual International Conference on Industrial Electronics, Control and Instrumentation, IECON'96, Taipei, Taiwan, pp. 1966-1971, August 5-10, 1996.
- [78] Cipriano, A., **Sáez, D.**, Ramos, M. “Fuzzy Control on a Laboratory Environment”, IEEE International Symposium on Industrial Electronics, ISIE'95, Athens, July 10-14, 1995.

PROJECTS

Funding programs from CONICYT Chilean National Commission for Scientific and Technological Research:

FONDECYT: National Fund for Scientific and Technological Development

FONDEF: Scientific and Technological Development Support Fund

FONDEQUIP: Scientific and Technological Equipment Program

FONDAP: Fund for Research Centers in Priority Areas

FONDART: National Fund for Cultural Development and the Arts.

1. Principal Investigator **IDEA** project ID24I10010 “Design and Implementation of an IoT/Renewable Technology Prototype with an Intercultural Approach for Indigenous Rural Schools”
 2. Principal Investigator **FONDECYT** project 1220507 “Distributed Predictive Control Strategies based on Evolving Prediction Intervals for Energy-Water Microgrids”.
 3. Co-Investigator **FONDECYT** project 1221392 “Enhanced Control Flexibility of Modular Multilevel Converters through Continuous Set Model Predictive Control”.
 4. Co-Investigator **FONDECYT** project 1210031 “A Hidden-Markov-Model-based Failure Prognostic Framework for Real-time Prognostic Decision Making”, 2021-2024.
 5. Co-Investigator, **FONDART** project 576104, “Participatory Design for the Creation of a University Cultivation System” *Warriache*, 2021.
 6. Co-Investigator, **FONDEF** ID19I10363, “Open expert system for supporting the water resources management through low-cost real-time monitoring of surface and groundwater”, 2020-2021.
 7. Principal Investigator, **FONDECYT** Project 1170683 “Robust Distributed Predictive Control Strategies for the Coordination of Hybrid AC and DC Microgrids”, 2017-2020.
 8. Co-Investigator, **FONDECYT** Project 1170044: “Prognostics Performance Metrics based on Bayesian Cràmer-Rao Lower Bounds”, 2017-2020.
 9. Co-Investigator, **FONDEQUIP** Project EQM160122 “Equipment for the Emulation and Testing of Energy Storage Systems”, 2016-2017.
 10. Co-Investigator, **International Cooperation** Project REDES150083 “Control Strategies and Hardware Topologies for the Operation of Energy Storage System in Microgrids”, Academic link AC3E UTFSM-U. of Waterloo, 2016-2017.
-

-
11. Principal Investigator, **FONDEF** Project 14I10063 “Design and Implementation of an Experimental Prototype of Microgrid for Mapuche Communities”, 2015-2018.
 12. Director, Project from **Ministry of Energy**, Chile “Solar-Wind Energy Supply ‘Nehuen Kurruf Ka Antu’ for Community meeting place José Painecura”, 2015-2016.
 13. Sub-director, **FONDEF** Project VIU14E075 “Development of a Real-time Estimator for the Energy Available of Battery Banks in Volcanic Monitoring Stations”, 2015-2016.
 14. Principal Investigator, **FONDECYT** Project 1140775 “Design of Robust Predictive Control Strategies for the Operation of Microgrids with High Penetration of Renewable Energy”, 2014-2016.
 15. Principal Investigator, **FONDECYT** Project 1110047 “Hybrid Fuzzy Predictive Control for Renewable Energy Plants”, 2011-2013.
 16. Co-investigator, **FONDECYT** Project 1100239 “Advanced Modelling and Optimization of Dynamic Transport Systems”, 2010-2013.
 17. Principal Investigator, **FONDEQUIP** Project EQM130058 “Microgrid Emulator for Design and Validation of Novel Control Strategies”, 2013-2014.
 18. Co-Investigator, **FONDEQUIP** Project EQM120111 “Equipment for Research in Hybrid Generation Systems”, 2013.
 19. Principal Investigator, **International Cooperation** Project REDES130053 “Control Strategies for Micro-grids with High Penetration of Renewable Energy”, U. Nottingham- Centre of Energy, U. Chile, 2013-2014.
 20. Co-Investigator, **International Cooperation** Project REDES130029 “Control and Management of Energy Storage Systems for Traction and Distributed Generation”, U. Waterloo – Centre of Energy, U. Chile, 2013-2014.
 21. Principal Investigator, **International Cooperation** Project REDENERG-0003 “Sustainability for Intelligent Micro-grids”, U. Waterloo – Centre of Energy, U. Chile, 2012-2013.
 22. Co-Investigator, **International Cooperation** Project REDENERG-0002 “Efficient applications of Lithium batteries to traction, renewable energies and energy storage”, U. Nottingham– Centre of Energy, U. Chile, 2012-2013.
 23. Associate Investigator, **FONDAP** Solar Energy Research Center, 2013-2018.
 24. Young Researcher, Complex Engineering Systems Institute, **Millennium Science Initiative** ICM: P-05-004-F, **CONICYT**: FBO16, 2011-date.
 25. Associate Investigator, Anillo-Bicentenario Project ACT32. **CONICYT** “Intelligent Real-Time Control for Integrated Transit Systems”. 2006-2010.
 26. Principal Investigator, **FONDECYT** Project 1061156 “Design of Predictive Control Strategies Based on Fuzzy Hybrid Modeling”, 2006-2008.
 27. Principal Investigator, **International Cooperation FONDECYT** Project 7070293 “Design of Predictive Control Strategies Based on Fuzzy Hybrid Modeling”, 2006.
 28. Principal Investigator, **FONDECYT** Project 1040698 “Hybrid Predictive Control Systems with Continuous and Discrete Variables”, 2004 -2006.
 29. Principal Investigator, **International Cooperation FONDECYT** Project 7040146 “Hybrid Predictive Control Systems with Continuous and Discrete Variables”. 2005.
 30. Investigator. **EPSRC Engineering and Physical Sciences Research Council** Project “Towards Multiple-model Based Learning Control Paradigms for Complex Systems”, 2003 – 2004.
 31. Principal Investigator, DI N°I2-03/14-2 Project, **University of Chile**, “Design of Supervisory Control Strategies for Non-linear Multivariate Systems and their Application to Thermal Power Plants”. 2004 – 2006.
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32. Principal Investigator, FCFM Project, **University of Chile** “Design of Optimal Supervisory Control Strategies for Multivariate Nonlinear Systems”, 2003.
 33. Principal Investigator, **FONDECYT** Project 4000026 “Stability of Optimized Supervisory Control Systems considering a Fixed Regulatory Level”. 2000-2002.
 34. Principal Investigator, **FONDECYT** Project 2980029 “Design of Predictive Control Strategies based on Nonlinear Models and their Application to the Control of Thermal Power Plants”, 1998 – 2000.
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STUDENTS

▪ **PhD. THESIS ADVISOR**

- 9 graduate students
1. Luis Jiménez, “Energy Management System with Demand Side Management based on Robust Model Predictive Control Strategies for Seaport Microgrids”. Ph. D in Electrical Engineering, U. Chile. (Starting 2025)
 2. Álvaro Endo, *Research title under development*. Ph. D in Electrical Engineering, U. Chile (2024 - Date)
 3. Javier Ocaranza, “Improving sustainability by studying water availability, quality, and pumping coordination in energy-water management systems”. Ph. D in Electrical Engineering, U. Chile (2023 - Date)
 4. Oscar Cartagena, “Fuzzy Interval Modelling and Control”. Ph. D in Electrical Engineering, U. Chile. Graduated 2024.
 5. Alex Navas, “Predictive Control Strategies for EMS&DSM of Microgrids” Double degree Ph. D in Electrical Engineering, U. Chile – U. Nottingham. Graduated 2022.
 6. Jacqueline Llanos, “Design of Control Strategies for Microgrids including Congestion”, Ph. D in Electrical Engineering, U. Chile. Graduated 2020.
 7. Juan Sebastián Gómez, “Distributed Predictive Secondary Control Strategies for Microgrids”, Ph. D in Electrical Engineering, U. Chile. Graduated 2020.
 8. Claudio Burgos, “Control Strategies for Improving Power Quality and Stability Evaluation in Microgrids” Double degree Ph. D in Electrical Engineering, U. Chile – U. Nottingham. Graduated in 2019.
 9. Luis Marín, “Hierarchical Energy Management System Based on Fuzzy Prediction Intervals for Operation and Coordination of Microgrids”, Ph. D in Electrical Engineering, U. Chile. Graduated in 2018.
 10. Carolina Ponce, “Design of Fuzzy Predictive Control Strategies for Combined Cycle Power Plants with Integrated Solar Collectors”, Ph. D in Electrical Engineering, U. Chile. Graduated in 2014.
 11. Freddy Milla, “Design of Non-linear Predictive Control Strategies for the Operation of Dynamic Public Transport Systems”, Ph. D in Electrical Engineering, U. Chile. Graduated in 2012.
 12. Alfredo Núñez, “Design of Hybrid Predictive Control Strategies for Optimization of Operational Processes in Dynamic Transport Systems”, Ph. D in Electrical Engineering, U. Chile. Graduated in 2009.

▪ **MASTER THESIS ADVISOR**

- 27 graduate students (2024: 2, 2023: 2, 2022: 3, 2021: 2, 2020: 1, 2019: 1, 2017: 2, 2016: 4, 2013: 3, 2012: 2, 2011: 2, 2010: 2, 2009: 1, 2007: 3, 2005: 1).
 - **UNDERGRADUATE FINAL PROJECT ADVISOR**
 - 37 undergraduate (2023: 2, 2022: 1, 2019: 1, 2018: 1, 2017: 2, 2016: 5, 2015: 2, 2013: 5, 2012: 1, 2011: 2, 2010: 2, 2009: 1, 2007: 4, 2006: 2, 2005: 2, 2004: 3, 2003: 1).
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TEACHING

Below is the list of courses that I have taught since 2001:

- EL4004 Principles of System Control (undergraduate course).
 - EL4105 Advanced Control of Systems (undergraduate course).
 - EL5205 Advanced Control Laboratory (undergraduate course).
 - EL7012 Intelligent Control (graduate course).
 - EL7025 Intelligent Control for Transport Dynamic Systems (graduate course).
 - EL7027 Seminar on Automatic Control (graduate course).
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