

List of Publications

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Under review or revision

- (SJ1) M. de Castro Fernandes, S. Boersma, and **L. Vanfretti**, "Object-Oriented Equation-Based Power System Modeling with Control and System Identification Applications," submitted to special issue of the IEEE Control Systems Magazine.
- (SJ2) BAKHOS, Gianni and BACHA, Seddik and GONZALEZ-TORRES, Juan-Carlos and **L. Vanfretti** and BENCHAI, Abdelkrim and DAI, Jing and SHINODA, Kosei, Hybrid Ac/Dc Power System Stability: An Attempt of Global Approach," submitted to EPSR. Available at SSRN: <https://ssrn.com/abstract=4704802> or <http://dx.doi.org/10.2139/ssrn.4704802>
- (SJ3) M.B. Medha, L. Vanfretti, S.S. Tawde, J. Fraiser, and P. Kumar, "Contingency Analysis of Embedded HVDC Lines Operating under AC Line Emulation Control Mode," submitted to the IEEE PES GM 2026.
- (SJ4) C. Mishra, L. Vanfretti, K.A. Vance, B. Pudasaini, T.J. Purcell, J. Delaree Jr., K.D. Jones, "Discerning Real-World Data Center Load Behavior and the Need for Long-Term Data Analysis," submitted to IEEE PES GM 2026.
- (SJ5) Md.N.H. Chowdhury, L. Vanfretti, J. Frasier, "Phasor-Domain Modeling of Blocking Behavior in Modular Multilevel Converters," submitted to the IEEE PES GM 2026.
- (SJ6) H. Chang and L. Vanfretti, "Integrating ICDMS-Compliant DLL Controller Models into Modelica for EMT Simulation," submitted to the IEEE PES GM 2026.
- (SJ7) H. Chang and **L. Vanfretti**, "EMT Modeling and Simulation of Grid Forming Converters in Modelica Integrating the IEEE/CIGRE 'Real Code'/DLL Modeling Guidelines," Synopsis accepted for full paper submission to the CIGRE Paris Session 2026.
- (SJ8) C. Mishra, B. Pudasaini, L. Vanfretti, J. Delaree Jr., K.D. Jones and M. McVey, "Synchrophasor Data-Driven Investigation of Real-World Unstable Controller Dynamics," Synopsis accepted for full paper submission to the CIGRE Paris Session 2026.
- (SJ9) B. Pudasaini, L. Vanfretti, C. Mishra, J. de la Ree Jr., and K.D. Jones, "Irregular Wind Power Plant Dynamics Induced by Power Factor Command Truncation," submitted to the 2026 IEEE Green Technologies Conference

In Preparation

- (IP1) M. de Castro, **L. Vanfretti**, G. Laera and M.N. Catalan, "Template-based Model Transformation Between Proprietary Tools and Modelica for Power System Studies,"
- (IP2) T. Bogodorova, D. Osipov, and **L. Vanfretti**, "Data-driven Action Recommender System using Deep Convolutional Neural Networks,"

Published Works

0 Conference Proceedings

(EP03) Proceedings of the American Modelica Conference 2024, Storrs, Connecticut, USA, October 14-16, 2024.

Download: <https://ecp.ep.liu.se/index.php/modelica/issue/view/95>

Series: Linköping Electronic Conference Proceedings 207

Editor(s): Michael Tiller, Hubertus Tummescheit, **Luigi Vanfretti**, Christopher Laughman, and Michael Wette

ISBN: 978-91-8075-568-9

ISSN: 1650-3686 (print), 1650-3740 (online)

Number of pages: 217

DOI: <https://doi.org/10.3384/ecp207>

Published: 2025-01-16

(EP03) Proceedings of the American Modelica Conference 2022, Dallas, Texas, USA, October 26-28, 2022.

Download: <https://ecp.ep.liu.se/index.php/modelica/issue/view/71/75>

Series: Linköping Electronic Conference Proceedings 186

Editor(s): Michael Tiller, Hubertus Tummescheit, **Luigi Vanfretti**, Christopher Laughman, and Michael Wetter

ISBN: 978-91-7929-218-8

ISSN: 1650-3686 (print), 1650-3740 (online)

Number of pages: 168

DOI: <https://doi.org/10.3384/ecp21186>

Published: 2023-02-09

(EP02) Proceedings of the American Modelica Conference 2020, Boulder, Colorado, USA, March 23-25, 2020

Download: <http://www.ep.liu.se/ecp/169/ecp2020169.pdf>

Editor(s): Michael Tiller, Hubertus Tummescheit, **Luigi Vanfretti**, Christopher Laughman, and Michael Wetter

Linköping Electronic Conference Proceedings 169 (2020)

Published: 2020-11-03

ISBN: 978-91-7929-900-2

ISSN: 1650-3686 (print), 1650-3740 (online)

Number of pages: 215

DOI: <https://doi.org/10.3384/ecp20169>

(EP01) Proceedings of The American Modelica Conference 2018, October 9-10, Samberg Conference Center, Cambridge MA, USA. Download: <http://www.ep.liu.se/ecp/154/ecp18154.pdf>

Editor(s): **Luigi Vanfretti** and Hubertus Tummescheit

Linköping Electronic Conference Proceedings 154 (2018)

Published: 2019-02-26

ISBN: 978-91-7685-148-7

ISSN: 1650-3686 (print), 1650-3740 (online)

Number of pages: 253

DOI: <https://doi.org/10.3384/ecp20169>

1 Books

(B01) **Luigi Vanfretti**, *Notions for PMU-Based Power System Model Reduction of Large Power Systems*. Saarbrücken, Germany: LAP LAMBERT Academic Publishing, October 2010. ISBN-13: 978-3-8433-6011-1. ISBN-10: 3843360111.

<https://www.lap-publishing.com/catalog/details/store/hu/book/978-3-8433-6011-1/notions-for-pmu-based-power-system-model-reduction?locale=gb>

2 Book Chapters

(BC04) **L. Vanfretti**, M. Baudette, and A. White, “Monitoring and control of renewable energy sources using synchronized phasor measurements,” Book Chapter, in *Renewable Energy Integration: Practical Management of Variability, Uncertainty and Flexibility in Power Grids*, Editor: Lawrence E. Jones, Elsevier, 2014, 2017.

<http://store.elsevier.com/Renewable-Energy-Integration/Lawrence-Jones/isbn-9780124079106/>

(BC03) **L. Vanfretti**, D. Van Hertem and J. O. Gjerde, “Smart Transmission Grids vision for Europe: Towards a Realistic Research Agenda”, Book Chapter, in *Smart Grids and Sustainable Energy Transformation*, Editors: P. Hills, Daphne Mah, Victor O.K. Li, Richard Balme, Springer, 2014.

<http://www.springer.com/energy/policy,+economics,+management+%26+transport/book/978-1-4471-6280-3>

(BC02) **L. Vanfretti**, Y. Chompoobutrgool, and J.H. Chow, “Chapter 10: Inter-Area Mode Analysis for Large Power Systems using Synchrophasor Data”, Book Chapter, in *Coherency and Model Reduction of Large Power Systems*, Joe H. Chow (Ed.), Springer, 2013.

<http://www.springer.com/energy/systems%2C+storage+and+harvesting/book/978-1-4614-1802-3>

(BC01) Rujiroj Leelaruij and **Luigi Vanfretti**, Power System Protective Relaying: Basic Concepts, Industrial-Grade Devices, and Communication Mechanisms, to appear, Chapter 16: Power-System Operations, Section 16.2, in W. Beaty (Editor), *Standard Handbook for Electrical Engineers*, 16th Edition, 2012.

<http://www.mcgrawhill.ca/professional/products/9780071762328/standard+handbook+for+electrical+engineers+sixteenth+edition/>

3 Journal Papers

List of Publications Appearing in Special Issues

- Paper (JP96) has been published in a [Special Issue: “Planning, Operation and Control of Power Systems with Large Amounts of Variable Renewable Generation”](#)
- Paper (JP95) has been published in a [Special Issue: “Intelligent Control of Power Grid and Renewable Energy System”](#).
- Paper (JP91) has been published in the [Special Issue: “Advanced Electric Power System 2023”](#).
- Paper (JP80) has been selected for a [Special Issue on Electrified Aircraft Technologies](#).
- Paper (JP65) has been published in a Special Issue on Cyber Physical Power Systems: Advanced Intelligent Technologies and Applications.
- Papers (JP57, JP58) published in a [Special Issue on Enabling Paradigms for Information Processing in Smart Grids](#).
- Paper (JP33) published in a Special Issue on Special Section on Protection and Real-Time Monitoring of Transmission and Distribution Systems with High Penetration of Distributed Generation and Microgrids
- Paper (JP29) published in a Special Issue of Selected Papers from the IEEE 2015 Conference.
- Paper (JP07) published in a Special Issue on Power System Phasor Measurement Data and Their Applications
- Paper (JP02) published in a Special Issue on Virtual Laboratories.

List of Published Journal Papers

2025 (5 articles)

(JP107) C. Mishra, **L. Vanfretti**, J. Delaree, K. D. Jones, “Discerning dynamics in synchrophasor data using topological data analysis,” *International Journal of Electrical Power & Energy Systems*, Volume 170, 2025, 110916, ISSN 0142-0615, <https://doi.org/10.1016/j.ijepes.2025.110916>.

Author’s Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/JP107_CMLV_Topological_DiscerningDynamics_PMU.pdf

Publisher’s Website: <https://www.sciencedirect.com/science/article/pii/S0142061525004648>

(JP106) M. MansourLakouraj, C. Mishra, **L. Vanfretti**, J. De La Ree, K. D. Jones and H. Livani, "Automated Step Change Detection in Real-World PMU Data Addressing Practical Implications," in IEEE Transactions on Power Delivery, vol. 40, no. 4, pp. 2194-2205, Aug. 2025, doi: 10.1109/TPWRD.2025.357201

Author's Copy:

https://www.researchgate.net/publication/392016406_Automated_Step_Change_Detection_in_Real-World_PMU_Data_Addressing_Practical_Implications

Publisher's Website: <https://ieeexplore.ieee.org/document/11008635>

(JP105) C. Mishra, **L. Vanfretti**, J. de la Ree Jr., T.J. Purcell, K.D. Jones, "Understanding the Inception of 14.7 Hz Oscillations Emerging from a Data Center," Sustainable Energy, Grids and Networks, Volume 43, 2025, 101735, ISSN 2352-4677, <https://doi.org/10.1016/j.segan.2025.101735>.

Author's Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/JP105_CMLV_data_center_14p7_Hz_oscillation.pdf

Publisher's Website: <https://doi.org/10.1016/j.segan.2025.101735>

(JP104) A. Chakrabarty, **L. Vanfretti**, Y. Wang, T. Mineyuki, S. Zhan, W. Tang, J.A. Paulson, V. M. Deshpande, S. A. Bortoff, C. R. Laughman, "Time-Series Generative Networks for Synthesizing Realistic Scenarios in Occupant-Centric Building Simulation," Building Simulation, April 2025.

Publisher's Website: <https://doi.org/10.1007/s12273-025-1260-8>

Author's Copy: https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/JP104_ACLV_MERL_GAN_BuildingSimulation.pdf

(JP103) F. Fachini, H. Chang, T. Bogodorova, and **L. Vanfretti**, "Customized open source renewable energy models validated through PHIL lab experiments," Renewable Energy, Volume 244, 2025, 122627, ISSN 0960-1481, <https://doi.org/10.1016/j.renene.2025.122627>

Publisher's Website: <https://doi.org/10.1016/j.renene.2025.122627>

Author's copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/JP103_FFLV_RENE-D-24-07028R1_WEC_C_vs_SMA_PHIL_Setup_Renewable_Energy_Journal_.pdf

2024 (10 articles)

(JP102) A. Rahimnejad, **L. Vanfretti**, S. A. Gadsden and a. Mohammad Alshabi, "Strengthening Lattice Kalman Filters: Introducing Strong Tracking Lattice Filtering for Enhanced Robustness," in IEEE Access, vol. 12, pp. 178552-178565, 2024, doi: 10.1109/ACCESS.2024.3504338.

Publisher's Website (open access): <https://ieeexplore.ieee.org/document/10759673>

(JP101) C. Mishra, **L. Vanfretti**, J. de la Ree Jr., and K. D. Jones, "Internal Clock Errors in Synchrophasor Ambient Data: Effects, Detection, and a posteriori Estimation-based Correction," International Journal of Electrical Power & Energy Systems, Volume 161, 2024, 110208, ISSN 0142-0615.

Preprint available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4747566

Publisher's Website (Open Access): <https://www.sciencedirect.com/science/article/pii/S0142061524004290>

Author's Copy:

https://www.researchgate.net/publication/383739296_Internal_clock_errors_in_synchrophasor_ambient_data_Effects_detection_and_a_posteriori_estimation-based_correction

(JP100) P. Huang, H. Wu, **L. Vanfretti** and O. Gomis-Bellmunt, "Wideband Impedance Passivation of MMCs for Suppressing Harmonic Oscillations," in IEEE Transactions on Power Delivery, vol. 39, no. 6, pp. 3101-3113, Dec. 2024, doi: 10.1109/TPWRD.2024.3453193.

Publisher's Website: <https://ieeexplore.ieee.org/document/10663242>

Author's Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/JP100_PH_TPWRD_Wideband_Passivation_Harmonic_Suppression.pdf

(JP99) F. Fachini, T. Bogodorova, **L. Vanfretti** and S. Boersma, "A microgrid control scheme for islanded operation and re-synchronization utilizing Model Predictive Control," Sustainable Energy, Grids and Networks, Volume 39, 2024, 101464, ISSN 2352-4677.

Publisher's Website: <https://doi.org/10.1016/j.segan.2024.101464>

Author's Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J099_FF_MPCI_UPDATE3_.pdf

(JP98) Tetiana Bogodorova, Denis Osipov, **Luigi Vanfretti**, "Fast small signal stability assessment using deep convolutional neural networks," Electric Power Systems Research, Volume 235, 2024, 110853, ISSN 0378-7796.

Publisher's Website: <https://doi.org/10.1016/j.epsr.2024.110853>

Author's Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J098_TB_Fast_Small_Signal_DeepConvolutionalNNs.pdf

(JP97) H. Chang and **L. Vanfretti**, "Power Hardware-in-the-Loop Smart Inverter Testing with Distributed Energy Resource Management Systems," in Electronics, 2024, 13(10):1866.

Publisher's Website (open access): <https://doi.org/10.3390/electronics13101866>

Author's copy:

https://www.researchgate.net/publication/380542317_Power_Hardware-in-the-Loop_Smart_Inverter_Testing_with_Distributed_Energy_Resource_Management_Systems

(JP96) F. Fachini, M. de Castro, T. Bogodorova, and **L. Vanfretti**, "Modeling of Induction Motors and Variable Speed Drives for Multi-Domain System Simulations Using Modelica and the OpenIPSL Library," in Electronics, 2024; 13(9):1614.

Publisher's Website (open access): <https://doi.org/10.3390/electronics13091614>

Author's copy:

https://www.researchgate.net/publication/380029515_Modeling_of_Induction_Motors_and_Variable_Speed_Drives_for_Multi-Domain_System_Simulations_Using_Modelica_and_the_OpenIPSL_Library

(JP95) M. Baudette, **L. Vanfretti**, and S. Tyagi, "S3DK: An Open Source Toolkit for Prototyping Synchrophasor Applications" in Electronics, 2024, 13 (8): 1513.

Publisher's Website (open access): <https://doi.org/10.3390/electronics13081513>

Author's copy:

https://www.researchgate.net/publication/379861429_S3DK_An_Open_Source_Toolkit_for_Prototyping_Synchrophasor_Applications

(PJ94) C. Mishra, **L. Vanfretti**, J. Delaree and K. D. Jones, "Analyzing a Non-Sinusoidal Response from a Real-World Solar PV," in IEEE Transactions on Power Systems, vol. 39, no. 2, pp. 4771-4774, March 2024, doi: 10.1109/TPWRS.2024.3350377

Author's copy:

https://www.researchgate.net/publication/376682844_Analyzing_a_Non-Sinusoidal_Response_from_a_Real-World_Solar_PV

Publisher's Website: <https://ieeexplore.ieee.org/document/10381886>

(JP93) Xavier Bombois and **Luigi Vanfretti**, "Performance monitoring and redesign of power system stabilizers based on system identification techniques," Sustainable Energy, Grids and Networks, Volume 38, 2024, 101278, ISSN 2352-4677, <https://doi.org/10.1016/j.segan.2024.101278>

Author's Copy: <https://hal.science/hal-04338856>

Publisher's Website: <https://www.sciencedirect.com/science/article/pii/S2352467724000079>

2023 (8 articles)

(JP92) Fernando Fachini, Marcelo de Castro, Tetiana Bogodorova, **Luigi Vanfretti**, “OpenIMDML: Open Instance Multi-Domain Motor Library utilizing the Modelica modeling language,” *SoftwareX*, Volume 24, 2023, 101591, ISSN 2352-7110, doi: 10.1016/j.softx.2023.101591.

Open Access Publisher’s Website: <https://www.sciencedirect.com/science/article/pii/S235271102300287X>

Author’s Copy:

https://www.researchgate.net/publication/376200907_OpenIMDML_Open_Instance_Multi-Domain_Motor_Library_utilizing_the_Modelica_modeling_language

(JP91) P. Adhikari, **L. Vanfretti**, and K. Kar, “Real-Time Control of a Battery Energy Storage System Using a Reconfigurable Synchrophasor-Based Control System,” *Special Issue “Advanced Electric Power System 2023”*, *Energies* 2023, 16(19), 6909, doi: 10.3390/en16196909.

Open Access Publisher’s Website: <https://www.mdpi.com/1996-1073/16/19/6909>

Authors’ copy:

https://www.researchgate.net/publication/374327975_Real-Time_Control_of_a_Battery_Energy_Storage_System_Using_a_Reconfigurable_Synchrophasor-Based_Control_System

(JP90) A. Rahimnejad, J. Enayati, **L. Vanfretti**, S. A. Gadsden and M. AlShabi, "Reinforced Lattice Kalman Filters: A Robust Nonlinear Estimation Strategy," in *IEEE Open Journal of Signal Processing*, vol. 4, pp. 410-423, 2023, doi: 10.1109/OJSP.2023.3298555.

Publisher’s website: <https://ieeexplore.ieee.org/document/10192922>

Author’s Copy:

https://www.researchgate.net/publication/372644995_Reinforced_Lattice_Kalman_Filters_A_Robust_Nonlinear_Estimation_Strategy

(JP89) P. Huang and **L. Vanfretti**, “Adaptive Damping Control of MMC To Suppress High-Frequency Resonance,” in *IEEE Transactions on Industry Applications*, vol. 59, no. 6, pp. 7224-7237, Nov.-Dec. 2023, doi: 10.1109/TIA.2023.3293071.

Publisher’s Website: <https://ieeexplore.ieee.org/document/10174666>

Author’s Copy:

https://www.researchgate.net/publication/372183572_Adaptive_Damping_Control_of_MMC_to_Suppress_High-Frequency_Resonance

(JP88) P. Huang and **L. Vanfretti**, “Multi-tuned Narrowband Damping for Suppressing MMC High-Frequency Resonances,” in *IEEE Transactions on Power Delivery*, vol. 38, no. 6, pp. 3804-3819, Dec. 2023, doi: 10.1109/TPWRD.2023.3289941.

Publisher’s Website: <https://ieeexplore.ieee.org/document/10164268>

Author’s Copy:

https://www.researchgate.net/publication/371934232_Multi-tuned_Narrowband_Damping_for_Suppressing_MMC_High-Frequency_Oscillations

(JP87) Marcelo de Castro, Dietmar Winkler, Giuseppe Laera, **Luigi Vanfretti**, Sergio A. Dorado-Rojas, Tin Rabuzin, Biswarup Mukherjee, Manuel Navarro, Version [OpenIPSL 2.0.0] - [iTesla Power Systems Library (iPSL): A Modelica library for phasor time-domain simulations], *SoftwareX*, Volume 21, 2023, 101277, ISSN 2352-7110, <https://doi.org/10.1016/j.softx.2022.101277>

Publisher’s Website: <https://www.sciencedirect.com/science/article/pii/S2352711022001959>

Author’s Copy: https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J087_OpenIPSL_v2p0p0.pdf

(JP86) S.A. Dorado-Rojas, F. Fachini, T. Bogodorova, G. Laera, M. de Castro Fernandes, and **L. Vanfretti**,

“ModelicaGridData: Massive Power System Simulation Data Generation and Labeling Tool using Modelica and Python,” SoftwareX, Volume 21, 2023, 101258, ISSN 2352-7110, DOI: 10.1016/j.softx.2022.101258.
Publisher’s Website: <https://www.sciencedirect.com/science/article/pii/S2352711022001765>

(JP85) Prottay M. Adhikari, **Luigi Vanfretti**, Anja Banjac, Roland Bründlinger, Michael Ruppert, Michael Ropp, “Analysis of transient overvoltages and Self Protection Overvoltage of PV inverters through RT-CHIL,” Electric Power Systems Research, Volume 214, Part A, 2023, 108826, ISSN 0378-7796,
<https://doi.org/10.1016/j.epsr.2022.108826>.
Publisher’s website: <https://www.sciencedirect.com/science/article/pii/S0378779622008793>
Author’s Copy:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J084_Prottay_GFOV_CHIL.pdf

2022 (5 articles)

(JP84) J. Enayati, A. Rahimnejad, **L. Vanfretti**, S. A. Gadsden and M. Al-Shabi, "Dynamic Harmonic Estimation Using a Novel Robust Filtering Strategy: Iterated Sliding Innovation Cubature Filter," in IEEE Transactions on Instrumentation and Measurement, 2022, doi: 10.1109/TIM.2022.3218539.
Publisher’s Website: <https://ieeexplore.ieee.org/document/9945639>
Author’s Copy:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J085_Abolfzl_HarmonicEstimation.pdf

(JP83) L. Kumar, S. Ahmed, **L. Vanfretti**, and N. Kishor, “Real-Time Testing of Synchrophasor-based Wide-Area Monitoring System Applications Acknowledging the Potential Use of a Prototyping Software Toolchain” International Transactions on Electrical Energy Systems, accepted for publication, June 2022.
Publisher’s website: <https://doi.org/10.1155/2022/6215040>
Author’s Copy:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J083_Lalit_RT_Testing_WAMS_Pupo.pdf

(JP82) M. Podlaski, X. Bombois, and **L. Vanfretti**, “Validation of power plant models using field data with application to the Mostar hydroelectric plant,” International Journal of Electrical Power & Energy Systems, Volume 142, Part B, 2022, 108364, ISSN 0142-0615, <https://doi.org/10.1016/j.ijepes.2022.108364>.
Publishers Website: <https://www.sciencedirect.com/science/article/pii/S0142061522003799>
Author’s copy:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J082_MP_Validation_of_Power_Plants_Using_PMU_Data.pdf

(JP81) L. R. Gorjão, **L. Vanfretti**, D. Witthaut, C. Beck and B. Schäfer, "Phase and amplitude synchronisation in power-grid frequency fluctuations in the Nordic Grid," in IEEE Access, vol. 10, pp. 18065-18073, 2022, doi: 10.1109/ACCESS.2022.3150338.
Publisher’s Website:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J081_LEO_Phase_and_Amplitude_Synchronization.pdf
Pre-print: <https://arxiv.org/abs/2105.0d0228v1>

(JP80) M. Podlaski, **L. Vanfretti**, A. Khare, M. Sumption, and P. Ansell, “Multi-Domain Modeling and Simulation of High Temperature Superconducting Transmission Lines under Short Circuit Fault Conditions,” IEEE Transactions on Transportation Electrification, vol. 8, no. 3, pp. 3859-3869, Sept. 2022, doi: 10.1109/TTE.2021.3131271. *Special Issue on Electrified Aircraft Technologies*.
Publisher’s Website: <https://ieeexplore.ieee.org/document/9627924>
Author’s Copy:
https://sites.ecse.rpi.edu/~vanfrl/documents/publications/journal/J080_MP_CHEETA-HTSLineModeling_and_FaultAnalysis.pdf

2021 (5 articles)

(J79) Prottay M. Adhikari, Hossein Hooshyar, Randall J. Fitsik, **Luigi Vanfretti**, “Precision timing and communication networking experiments in a real-time power grid hardware-in-the-loop laboratory,” Sustainable Energy, Grids and Networks, 2021, 100549, ISSN 2352-4677.

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(J25) M.S. Almas, and **L. Vanfretti**, "RT-HIL Implementation of Hybrid Synchrophasor and GOOSE-based Passive Islanding Schemes," *IEEE Transactions on Power Delivery*, vol. 31, no. 3, pp. 1299-1309, 2015. <http://dx.doi.org/10.1109/TPWRD.2015.2473669>

Author's copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J025_goose_pmu_islanding_protection.pdf

(J24) H. Hooshyar, F. Mahmood, **L. Vanfretti**, and M. Baudette "Specification, Implementation and Hardware-in-the-Loop Real-Time Simulation of an Active Distribution Grid," *Sustainable Energy, Grids and Networks (SEGAN)*, Elsevier, vol. 3, Sept. 2015, pp. 36-51. Available in open-access: <https://dx.doi.org/doi:10.1016/j.segan.2015.06.002>

Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J024_ADN_MODEL.pdf

(J23) W. Li and **L. Vanfretti**, "A PMU-based state estimator considering classic HVDC links under different control modes", *Sustainable Energy, Grids and Networks (SEGAN)*, Elsevier, vol. 2, pp. 69-82, June 2015. <https://dx.doi.org/doi:10.1016/j.segan.2015.04.004>

Author's copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J023_PMU_StateEstimator_for_HVDC.pdf

(J22) N. T. Anh, **L. Vanfretti**, J. Driesen and D. Van Hertem, "A Quantitative Method to Determine ICT Delay Requirements for Wide-Area Power System Damping Controllers," in *IEEE Transactions on Power Systems*, vol. 30, no. 4, pp. 2023-2030, July 2015. <http://dx.doi.org/10.1109/TPWRS.2014.2356480>

Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J022_wacs_delay_design.pdf

(J21) **L. Vanfretti** and M. Farrokhabadi, "Consensus-Based Course Design and Implementation of Constructive Alignment Theory in a Power System Analysis Course", *European Journal of Engineering Education*, vol. 40, no. 2, 2015. <https://dx.doi.org/10.1080/03043797.2014.944101>
Pre-print: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J021_Consensus_CAT_Teaching.pdf

(J18) R. Leelaruij, **L. Vanfretti**, K. Uhlen, and J. O. Gjerde, "Computing sensitivities from synchrophasor data for voltage stability monitoring and visualization" *Int. Trans. Electr. Energ. Syst.*, 25, 933–947, 2015.
<http://dx.doi.org/10.1002/etep.1869>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J018_pmu_voltage_sensitivities.pdf

(J16) **L. Vanfretti**, S. Bengtsson, and J.O. Gjerde, Preprocessing synchronized phasor measurement data for spectral analysis of electromechanical oscillations in the Nordic Grid, *Int. Trans. Electr. Energ. Syst.*, 25, 348–358, 2015. <http://dx.doi.org/10.1002/etep.1847>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J016_preprocessing_pmu.pdf

2014 (3 articles)

(J20) C. Sturk, **L. Vanfretti**, Y. Chompoobutrgool, and H. Sandberg, "Non-coherency based structure model reduction of power systems," *IEEE Transactions on Power Systems*, vol. 29, no. 5, pp. 2418 – 2426, Sept. 2014. <https://dx.doi.org/10.1109/TPWRS.2014.2302871>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J020_ModelReduction.pdf

(J19) V. Peric and **L. Vanfretti**, "Power System Ambient Mode Estimation Considering Spectral Load Properties," *IEEE Transactions on Power Systems*, vol. 29, no. 3, pp. 1133 – 1143, May 2014.
<https://dx.doi.org/10.1109/TPWRS.2013.2292331>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J019_mode_estimation_wforced_osc.pdf

(J17) M. Farrokhabadi and **L. Vanfretti**, "An Efficient Automated Topology Processor for State Estimation of Power Transmission Networks", *Electric Power Systems Research* (Elsevier), Vol. 106, pp. 188-202, Jan. 2014. <http://dx.doi.org/10.1016/j.epsr.2013.08.014>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J017_topology_processor.pdf

2013 (3 articles)

(J15) **L. Vanfretti** and M. Farrokhabadi, "Evaluating Constructive Alignment Theory Implementation in a Power Systems Analysis Course Through Repertory Grids," in *IEEE Transactions on Education*, vol. 56, no. 4, pp. 443-452, Nov. 2013. <http://dx.doi.org/10.1109/TE.2013.2255876>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J015_repertory_grid_teaching.pdf

(J14) Yuwa Chompoobutrgool and **L. Vanfretti**, "Identification of Power System Dominant Inter-Area Oscillation Paths," *IEEE Transactions on Power Systems*, vol. 28, no. 3, pp. 2798 – 2807, Aug. 2013.
DOI: <http://dx.doi.org/10.1109/TPWRS.2012.2227840>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J014_dominant_inter-area_oscillation_paths.pdf

(J13) D.M. Lavery, R.J. Best, P. Brogan, I. Al Khatib, **L. Vanfretti**, and D.J. Morrow, "OpenPMU Platform for Open Source Phasor Measurements", *IEEE Transactions on Instrumentation and Measurements*, vol. 62, no. 4, April 2013, pp. 701 – 709. <http://dx.doi.org/10.1109/TIM.2013.2240920>
Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J013_openpmu.pdf

2012 (4 articles)

(J12) R. Leelarужи and **L. Vanfretti**, “State-of-the-Art in the Industrial Implementation of Protective Relay Functions, Communication Mechanisms and Synchronized Phasor Capabilities for Electric Power Systems Protection,” *Renewable and Sustainable Energy Reviews*, Elsevier, Vol. 16, no.7, Sept. 2012, pp. 4385-4395. <https://doi.org/10.1016/j.rser.2012.04.043>

Author’s copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J012_protection_relays_and_pmus.pdf

(J11) W. Li, **L. Vanfretti** and Y. Chompoobutrgool, “Development and Implementation of Hydro Turbine and Governor Models in a Free and Open Source Software Package,” *Simulation Modelling Practice and Theory*, Elsevier, vol. 24, pp. 84-102, May 2012. <http://dx.doi.org/10.1016/j.simpat.2012.02.005>

Author’s copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J011_psat_hydro_turbines.pdf

(J10) R. Leelarужи and **L. Vanfretti**, “Detailed Modelling, Implementation and Simulation of an “All-in-one” Stability Test System including Power System Protective Devices,” *Simulation Modelling Practice and Theory*, Elsevier, vol. 23, pp. 36-59, April 2012. <http://dx.doi.org/10.1016/j.simpat.2012.01.002>

Author’s copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J010_all-in-one-wprotections.pdf

(J09) **L. Vanfretti** and Federico Milano, “Facilitating Constructive Alignment in Power System Engineering Education using Free and Open Source Software,” *IEEE Transactions on Education*, vol. 55, no.3, August 2012, pp. 309-318. <http://dx.doi.org/10.1109/TE.2011.2172211>

Author’s copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J009_CAT_FLOSS.pdf

2011 (3 articles)

(J08) Y. Chompoobutrgool and **L. Vanfretti**, “Survey on Power System Stabilizers Control and their Prospective Applications for Power System Damping using Synchrophasor-Based Wide-Area Systems”, *European Transactions on Electrical Power*, Feb. 2011. <http://dx.doi.org/10.1002/etep.545>

Author’s copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J008_PSS_PMU_Damping.pdf

(J07) **L. Vanfretti**, L. Dosiek, J. W. Pierre, D. Trudnowski, J. H. Chow, R. García-Valle, and U. Aliyu, “Application of Ambient Analysis Techniques for the Estimation of Electromechanical Oscillations from Measured PMU Data in Four Different Power Systems”, *European Transactions on Electrical Power*, **Special Issue: Power System Measurement Data and their Applications**, vol. 21, no. 4, pp. 1640-1656, May 2011. <http://dx.doi.org/10.1002/etep.507>

Author’s copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J007_mode_estimation_w_forced_oscillations.pdf

(J06) **L. Vanfretti**, J. H. Chow, S. Sarawgi, and B. Fardanesh, “A Phasor-Data Based State Estimator Incorporating Phase Bias Correction”, in *IEEE Transactions on Power Systems*, vol. 26, no. 1, pp. 111-119, Feb. 2011. <http://dx.doi.org/10.1109/TPWRS.2010.2047031>

Author’s copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J006_PMU_PSE.pdf

2010 (2 articles)

(J05) C.E. Ugalde-Loo, E. Acha, E. Liceaga-Castro, **L. Vanfretti**, “Individual Channel Analysis of the Thyristor- Controlled Series Compensator Performance,” *International Journal of Emerging Electric Power Systems*, Vol. 27, No. 1, Jan. 2010. <https://doi.org/10.2202/1553-779X.2190>

Author’s copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J005_icad_tcsc.pdf

(J04) **L. Vanfretti** and F. Milano, "The Experience of PSAT (Power System Analysis Toolbox) as a Free and Open Source Software for Power System Education and Research," *International Journal of Electrical Engineering Education*, vol. 27, no. 1, Jan. 2010. <http://dx.doi.org/10.7227/IJEEE.47.1.5>

Author's copy:

https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J004_psat_edu.pdf

2007-2009 (3 articles)

(J03) J. H. Chow, A. Chakraborty, **L. Vanfretti**, and M. Arcak, "Estimation of Radial Power System Transfer Path Dynamic Parameters using Synchronized Phasor Data", *IEEE Transactions on Power Systems*, Vol. 23, No.2, pp. 564-571, May 2008. <http://dx.doi.org/10.1109/TPWRS.2008.919315>

Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J003_transfer_path_estimation.pdf

(J02) F. Milano, **L. Vanfretti**, and J.C. Morataya, "An Open Source Power System Virtual Laboratory: The PSAT Case and Experience," *IEEE Transactions on Education*, **Special Issue on Virtual Laboratories**, Vol. 51, No. 1, pp. 17-23, Feb. 2008. DOI: <http://dx.doi.org/10.1109/TE.2007.893354>

Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J002_virtual_lab_PSAT.pdf

(J01) C.E. Ugalde-Loo, **L. Vanfretti**, E. Acha and E. Liceaga-Castro, "Synchronous Generators Modeling Using the Framework of Individual Channel Analysis and Design. Part 1," *International Journal of Emerging Electric Power Systems*, Vol. 8, Iss. 5. Article 4. November 21, 2007. <https://doi.org/10.2202/1553-779X.1638>

Author's copy: https://ecse.rpi.edu/~vanfrl/documents/publications/journal/J001_ICAD_synch_generator.pdf

4 Conference Papers and Peer Reviewed Presentations

4.1 Peer Reviewed Conference Abstracts/Presentations

Note: I have not documented any peer-reviewed abstracts or presentations prior to those of 2020.

2024

(CNPR202401) C. Mishra, L. Vanfretti, J. de la Ree Jr., and K. D. Jones, “Automatically Discerning Power System Dynamics in Synchrophasor Measurements Data Spectra,” NASPI Work Group Meeting and Vendor Show, April 16, 2024, Salt Lake City, Utah. Note: selected for the NASPI-NERC Synchrophasor Data Analytics Workshop.

Author’s Abstract: https://sites.ecse.rpi.edu/~vanfrl/documents/publications/conference/2024/CNPR202401_Spectrogram_lvrev_submission.pdf

2023

(CNPR202302) C. Mishra, L. Vanfretti, K.D. Jones, R. Matthew Gardner, “Designing Model-Free Time Derivatives in the Frequency Domain for Ambient PMU Data Applications,” NASPI Work Group Meeting and Vendor Show, April 4-5, 2023, Tempe, Arizona.

Author’s Abstract:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/conference/2023/CNPR2-2302_Mishra_Dominion%20Energy_Ambient%20Derivative.pdf

(CNPR202301) X. Xu, C. Mishra, L. Vanfretti, C. Wang, K.D. Jones, J. Brian Starling, and R. M. Gardner, “Tracking Periodic Voltage Sags via Synchrophasor Data in a Geographically Bounded Service Territory,” NASPI Work Group Meeting and Vendor Show, April 4-5, 2023, Tempe, Arizona.

Author’s Abstract:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/conference/2023/CNPR202301_Vanfretti_Dominion%20Energy_Tracking%20Periodic%20Voltage%20Sags.pdf

(CNPR202303) M. Podlaski, A.N. Khare and L. Vanfretti, “Electro-Thermal Modeling of Fuel Cells and Batteries for CHEETA Aircraft,” AIAA 2023-3990. AIAA AVIATION 2023 Forum. June 2023.

<https://doi.org/10.2514/6.2023-3990.vid>

Publisher’s website: <https://virtualaviation.aiaa.org/Title/0a26f5ee-1150-424c-85fc-5fd0aa53f581>

Author’s copy: https://youtu.be/_FZJZn1l-MM

2022

(CNPR202202) Glen Halley, Marcelo de Castro, and Luigi Vanfretti, “Model Transformation for Smart Grid Applications,” Wolfram Technology Conference, October 18-21, 2022, Champaign, IL, USA.

Event website: <https://www.wolfram.com/broadcast/video.php?c=511&p=2&v=3752>

(CNPR202201) Marcelo de Castro, Giuseppe Laera, Manuel Navarro Catalan, Luigi Vanfretti and Glen Halley, “Model Transformation for Smart Grid Applications,” 16th MODPROD Workshop on Model-Based Cyber-Physical Product Development, February 1-2, 2022.

Author’s copy of peer reviewed presentation:

https://ecse.rpi.edu/~vanfrl/documents/presentations/2022/2022_modeltransf_modprod2022_paper_3.pdf

2021

(CNPR202105) L. Vanfretti, G. Laera, M. de Castro Fernandes, C. Wang, C. Mishra and K. D. Jones, “Initial steps in deploying and calibrating power system models on a synchrophasor data cloud platform using FMI,” FMI User Meeting at the Modelica Conference 2021, 14th International Modelica Conference, Linköping, September 20-24, 2021.

Publisher’s Website:

https://raw.githubusercontent.com/modelica/ModelicaConference2021/master/presentations/FMI-User-Meeting/01_FMI_Dominion_Model_Calibration_Slides.pdf

Author’s copy of Abstract:

https://ecse.rpi.edu/~vanfrl/documents/publications/conference/2021/CNPR_2021_05_LV_Dominion_Cloud_MODELICA_2021_paper_45.pdf

(CNPR202104) T. Bogodorova, D. Osipov and L. Vanfretti, “Automated Design of Realistic Contingencies for Big Data Generation,” IEEE PES General Meeting, 2021.

Note: Abstract of published Journal paper accepted for presentation published in IEEE Transactions on Power Systems, vol. 35, no. 6, pp. 4968-4971, Nov. 2020, doi: 10.1109/TPWRS.2020.3020726.

Video Presentation: https://youtu.be/qwJ_RV9EZVc

(CNPR202103) Meaghan Podlaski, **Luigi Vanfretti**, Abhijit Khare, Mike Sumption, Phillip Ansell, “Electro-Thermal Modeling of HTS Power Lines for Cryogenically-Cooled Electric Aircraft Design,” 2021 joint 23rd Cryogenic Engineering Conference and International Cryogenic Materials Conference, July 19 – 23, 2021, virtual conference.

Abstract: https://ecse.rpi.edu/~vanfrl/documents/publications/conference/2021/CNPR_2021_03_HTS.pdf

Video presentation: <https://youtu.be/L8zLYSTZmFg>

(CNPR202102) Abhijit Khare, Meaghan Podlaski, Wolfgang Stautner, Joshua Feldman, **Luigi Vanfretti**, Kiruba Haran, Phillip Ansell, “Design and Analysis of Cryogenic Cooling System for Superconducting Motor,” 2021 joint 23rd Cryogenic Engineering Conference and International Cryogenic Materials Conference, July 19 – 23, 2021, virtual

Abstract: https://ecse.rpi.edu/~vanfrl/documents/publications/conference/2021/CNPR_2021_02_MotorCooling.pdf

(CNPR202101) Y. Hwang, A. Tsamis, T. Borca-Tasciuc, and L. Vanfretti, “Modeling and Simulation of a Structurally Integrated Building Energy Module,” 2021 ASHRAE Virtual Design and Construction Conference, March 8-10, 2021, Orlando.

Slides: https://ecse.rpi.edu/~vanfrl/documents/presentations/2021/2021_Hwang_ASHRAE_VDC.pdf

2020

(CNPR202002) Marcelo de Castro Fernandes, Manuel Navarro Catalan, Maxime Baudette, and **L. Vanfretti**, “The Open Instance Power System Library (OpenIPSL): A Modelica Library for Phasor Time-Domain Simulations”. User Presentation. Virtual American Modelica Conference, September 22 - 24, 2020.

Abstract: <https://bit.ly/32aI10Z>

Video Presentation: <https://www.youtube.com/watch?v=2i3fvgFtcYA>

Publisher’s Website:

<https://2020.american.conference.modelica.org/proceedings/userpresentations/userpresentations.html>

(CNPR202001) **L. Vanfretti**, “Teaching a Course on Modeling and Simulation for Cyber-Physical Systems using Modelica and FMI Technologies with Hands-on-Laboratories”. User Presentation. Virtual American Modelica Conference, September 22 - 24, 2020. Abstract: <https://bit.ly/33bGneR>

Video Presentation: <https://bit.ly/32bsm1N>

Publisher’s Website:

<https://2020.american.conference.modelica.org/proceedings/userpresentations/userpresentations.html>

4.2 Peer Reviewed Papers which have been invited to Panels and/or Selected for Presentation in Special Sessions, Workshops and other Special Activities in Conferences

The papers enumerated in the table below were invited and presented in Panel and Special Paper Sessions in different international conferences. A complete citation for each paper is given below:

No.	Panel/Paper Session	Conference
CP248, CP247	Invited Session (Peer Reviewed): Object Oriented Modeling and Control	2024 8th IEEE Conference on Control Technology and Applications (CCTA)
CP234	Electrical Energy Generation, Storage and Management NASA University Innovation (UI) & University Leadership Initiative (ULI) Sessions	AIAA Aviation 2023 – San Diego, 2023.
CP180	Machine Learning and the Physical Sciences Workshop	34th Conference on Neural Information Processing Systems (NeurIPS), 2020
CP178, CP179	WS-2: Machine Learning and Big Data Analytics in Power Transmission Systems	IEEE SmartGridComm'20
C56	Technical Session, Track 5: Communication and Control in Smart Grids	BlackSeaCom 2013
C49, 54	Identification of Electromechanical Modes in Power Systems	IEEE PES GM 2013
C52	New Synchrophasor Standards and Guides: Measurements, Data Transfer, Concentration and Implementation Requirements	IEEE PES GM 2013
C41	Real Time Simulation of Smart Grids	IEEE PES ISGT Europe 2012
C37	Real-time simulation and validation methods for power and energy systems	IECON 2012
C33, C34	RT and HIL Simulation for Approaching Complexity in Future Power & Energy Systems	IEEE COMPENG 2012
C32	Stability and control in Smart Power Grid	IFAC PP&PSC 2012
C28	Distributed Control – Bringing together the power and control communities	IEEE PES GM 2012
C27	Synchrophasor Measurement Applications in Power Industry to Enhance Power System Reliability	IEEE PES GM 2012
C26	Wide-Area Early Warning Systems	IEEE PES GM 2012
C23	Development of System ID Methods for Power System Dynamics	IFAC SysID 2012
C18, C19	PMU/WAMS Invited Paper Session	PSCC 2011
C17	International Implementation Experience and Prospective Applications of Synchrophasors and their Supporting Infrastructures	IEEE PES GM 2011
C16	Bringing Smart Grids to the Next Level (Working Group on European Electricity Infrastructure)	IEEE PES GM 2011
C15	Best Practices in Electrical Power Engineering Education	IEEE PES GM 2011
C10	New Techniques for Synchronized Phasor Data Analysis Panel Session	IEEE PES GM 2009
C09	Recent Applications of Linear Analysis Techniques Panel Session	IEEE PES GM 2009
C08	NSF-Sponsored US-African Collaborative Research and Education Panel Session	IEEE PES GM 2009
C07	Panel Session on Open Source Software for Power Systems	IEEE PES GM 2009
C06	Deployment and Applications of Synchronized Phasor Measurements	IEEE PSCE 2009

4.3 List of Peer Reviewed Conference Papers

2026 (1 Articles)

(CP258) C. Mishra, L. Vanfretti, B. Pudasaini, J. Delaree Jr., K. D. Jones, “Inferring PV Plant Reactive Power Control Mode from Ambient PMU Data,” 59th Hawaii International Conference on System Sciences (HICSS), January 6-9, 2026, Hyatt Regency Maui, HI.

Author’s copy:

<https://www.researchgate.net/publication/395690344> Inferring PV Plant Reactive Power Control Mode from Ambient PMU Data

2025 (6 Articles)

(CP257) V. Dixit, C. Mishra, **L. Vanfretti**, and V. Centeno, “Baseline Adjustment and Thresholding for Improved Spectral Analysis of Ambient Synchrophasor Data,” 2025 IEEE Electrical Power and Energy Conference (EPEC), October 15-17, Ontario, Canada.

Author’s copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/conference/2025/CP257_VDCMLV_Baseline_Adjustment_and_Thresholding_for_Improved_Spectral_Analysis_of_Ambient_Synchrophasor_Data.pdf

Publisher’s website:

(CP256) M. de Castro and **L. Vanfretti**, “OpenIWPI: Open-Instance Wave-Phasor Interface Library for Power System Simulation Studies in Modelica,” 16th International Modelica & FMI Conference, Lucerne, Switzerland, September 8-10, 2025.

Github Repository: <https://github.com/ALSETLab/OpenIWPI>

Author’s copy:

https://www.researchgate.net/publication/394137671_OpenIWPI_Open-Instance_Wave-Phasor_Interface_Library_for_Power_System_Simulation_Studies_in_Modelica

Publisher’s website:

(CP255) S. Basumallik, **L. Vanfretti**, M.A. Dashtaki, Z. Zhang, R. Pourramezan and H. Hooshyar, “Enhancing Large-Scale Power Systems Simulations through Functional Mockup Unit-based Grid-Forming Inverter Models,” 16th International Modelica & FMI Conference, Lucerne, September 8-10, 2025.

Author’s Copy:

https://www.researchgate.net/publication/393787660_Enhancing_Large-Scale_Power_Systems_Simulations_through_Functional_Mock-up_Unit-based_Grid-Forming_Inverter_Models

Publisher’s Website:

(CP254) S. Bhattacharjee, F. Fachini and **L. Vanfretti**, “Advancing Generic Renewable Energy Models: Implementation of the REEC_D and REGC_B Models in Modelica and OpenIPSL,” 16th International Modelica & FMI Conference, Lucerne, Switzerland, September 8-10, 2025.

Github Repository: https://github.com/ALSETLab/OpenIPSL_IMC2025WECC

Author’s Copy:

https://www.researchgate.net/publication/394269684_Expanding_an_Open-Source_Modelica-Compliant_Package_of_Generic_Renewable_Energy_Source_Models_Implementation_of_the_REEC_D_and_REGC_B_WECC_Models_in_OpenIPSL

Publisher’s Website

(CP253) M.B. Medha, **L. Vanfretti**, S.S. Tawde, J. Frasier, and P. Kumar, “Modeling dispatch scenarios of an embedded HVDC link using historical NYISO Data,” CIGRE 2025 International Symposium, Quebec, Canada, October, 2025.

Author’s Copy:

https://www.researchgate.net/publication/393787999_Modelling_dispatch_scenarios_of_an_embedded_HVDC_link_using_historical_NYISO_data

Publisher’s Website:

(CP252) B. Pudasaini, **L. Vanfretti**, C. Mishra, J. de la Ree Jr., and K. D. Jones, “Dynamic Performance Analysis of an Inverter-Based PV Plant during Sunrises and Sunsets through Synchrophasors,” 2025 IEEE Power & Energy Society General Meeting, Austin, Texas, USA.

Author's Copy:

https://www.researchgate.net/publication/389813682_Dynamic_Performance_Analysis_of_an_Inverter-Based_PV_Plant_during_Sunrises_and_Sunsets_through_Synchrophasors

Publisher's Website:

2024 (13 Articles)

(CP251) H. Chang and **L. Vanfretti**, "Integrating the IEEE/Cigre DLL Modeling Standard to use of "Real Code" for Power System Analysis using Modelica," in Proceedings of the American Modelica Conference 2024, Storrs, Connecticut, USA, October 14-16, 2024.

Author's Copy:

https://www.researchgate.net/publication/381482867_Integrating_the_IEEECIGRE_DLL_Modeling_Standard_to_Use_Real_Code_Models_for_Power_System_Analysis_in_Modelica_Tools

Publisher's Website: https://modelica.org/events/american2024/271463_Modelica_Storrs_Proceedings_v3_SinglePages.pdf

(CP250) **L. Vanfretti**, C. R. Laughman and A. Chakrabarty, "Integrating Generative Machine Learning models and Physics-Based Models for Building Simulation," in Proceedings of the American Modelica Conference 2024, Storrs, Connecticut, USA, October 14-16, 2024.

Author's Copy:

https://www.researchgate.net/publication/386246087_Integrating_Generative_Machine_Learning_Models_and_Physics-Based_Models_for_Building_Energy_Simulation

Publisher's Website: https://modelica.org/events/american2024/271463_Modelica_Storrs_Proceedings_v3_SinglePages.pdf

(CP249) S. Bhattacharjee, **L. Vanfretti** and F. Fachini, "Building Models for Stability and Control Design Analysis using Modelica and the OpenIPSL," in Proceedings of the American Modelica Conference 2024, Storrs, Connecticut, USA, October 14-16, 2024.

Author's Copy:

https://www.researchgate.net/publication/381482937_Building_Power_System_Models_for_Stability_and_Control_Design_Analysis_using_Modelica_and_the_OpenIPSL

Publisher's Website: https://modelica.org/events/american2024/271463_Modelica_Storrs_Proceedings_v3_SinglePages.pdf

(CP248) **L. Vanfretti** and C.R. Laughman, "Power System Modeling for Identification and Control Applications using Modelica and OpenIPSL," 2024 IEEE Conference on Control Technology and Applications (CCTA), Newcastle upon Tyne, United Kingdom, 2024, pp. 525-532, doi: 10.1109/CCTA60707.2024.10666594.

Invited Paper in the "Object Oriented Modeling for Control" Invited Session of the conference.

Author's Copy:

https://sites.ecse.rpi.edu/~vanfrl/documents/publications/conference/2024/CP248_LVCRL_Modelica_PSMODELING4Control_CCTA.pdf

Publisher's Website: <https://ieeexplore.ieee.org/document/10666594>

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