europass

Elena-Lorena Hedrea

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EXPERIENȚA PROFESIONALĂ

Asistent universitar
Universitatea Politehnica Timișoara [2020 – În curs]

Localitatea: Timișoara
Țara: România

EDUCAȚIE ȘI FORMARE PROFESIONALĂ

Diploma de Doctor
Universitatea Politehnica Timișoara [2017 – 2022]

Localitatea: Timișoara
Țara: România

Diploma de Master
Universitatea Politehnica Timișoara [2015 – 2017]

Localitatea: Timișoara
Țara: România

Diploma de Licență
Universitatea Politehnica Timișoara [2011 – 2015]

Localitatea: Timișoara
Țara: România

Diploma de Bacalaureat
Colegiul Național Alexandru Lahovari [2007 – 2011]

Localitatea: Rm. Vâlcea
Țara: România

COMPETENȚE LINGVISTICE

Limbă(i) maternă(e): română

Altă limbă (Alte limbi):

engleză	franceză
COMPREHENSIUNE ORALĂ C1	CITIT C1
SCRIS C1	
EXPRIMARE SCRISĂ C1	CONVERSAȚIE C1
COMPREHENSIUNE ORALĂ B2	CITIT B2
SCRIS B2	
EXPRIMARE SCRISĂ B2	CONVERSAȚIE B2

Niveluri: A și A2 Atilizator de bază B și B2 Atilizator independent C și C2 Atilizator experimentat

COMPETENȚE DIGITALE

Utilizare buna a programelor de comunicare(mail messenger skype) / Microsoft Office / Matlab R2019a / Google Drive / Zoom

PUBLICAȚII

Gain-Scheduling Control Solutions for Magnetic Levitation Systems

[2018]

C.-A. Bojan Dragos, M.-B. Radac, R.-E. Precup, **E.-L. Hedrea** and O. Tanasoiu, "Gain-Scheduling Control Solutions for Magnetic Levitation Systems", Acta Polytechnica Hungarica, 15(5), pp. 89-108.

Results on Tensor Product-based Model Transformation of Magnetic Levitation Systems

[2019]

E.-L. Hedrea, R.-E. Precup and C.-A. Bojan-Dragos, "Results on Tensor Product-based Model Transformation of Magnetic Levitation Systems," Acta Polytechnica Hungarica, vol. 16, no. 9, pp. 93-111, 2019.

A center manifold theory-based approach to the stability analysis of the state feedback Takagi-Sugeno-Kang Fuzzy control systems

[2020]

R.-E. Precup, S. Preitl, E.M. Petriu, R.-C. Roman, C.-A. Bojan-Dragos, **E.-L. Hedrea** and A.-I. Szedlak-Stinean, "A center manifold theory-based approach to the stability analysis of the state feedback Takagi-Sugeno-Kang Fuzzy control systems," Facta Universitatis-Series Mechanical Engineering, vol. 18, no. 2, pp. 189-204, 2020.

Experiment-Based Approach to Teach Optimization Techniques

[2021]

R.-E. Precup, **E.-L. Hedrea**, R.-C. Roman, E.M. Petriu, A.I. Szedlak-Stinean and C.-A. Bojan-Dragos, "Experiment-Based Approach to Teach Optimization Techniques," IEEE Transactions on Education, vol. 64, no. 2, pp. 88-94, 2021.

Tensor product-based model transformation approach to cart position modeling and control in pendulum-cart systems

[2021]

E.-L. Hedrea, R.-E. Precup, E.M. Petriu, C.-A. Bojan-Dragos and C. Hedrea, "Tensor product-based model transformation approach to cart position modeling and control in pendulum-cart systems," Asian Journal of Control, vol. 23, no. 3, pp. 1238-1248, 2021.

Evolving Fuzzy Models of Shape Memory Alloy Wire Actuators

[2021]

R.-E. Precup, C.-A. Bojan-Dragos, **E.-L. Hedrea**, R.-C. Roman and E.M. Petriu, "Evolving Fuzzy Models of Shape Memory Alloy Wire Actuators," Romanian Journal of Information Science and Technology, vol. 24, no. 4, 2021, pp. 353-365.

Tensor product-based model transformation approach to tower crane systems modeling

[2021]

E.-L. Hedrea, R.-E. Precup, R.-C. Roman and E.M. Petriu, "Tensor product-based model transformation approach to tower crane systems modeling," Asian Journal of Control, vol. 23, no. 3, pp. 1313-1323, 2021.

Data-Driven Model-Free Sliding Mode and Fuzzy Control with Experimental Validation

[2021]

R.-E. Precup, R.-C. Roman, **E.-L. Hedrea**, E.M. Petriu and C.-A. Bojan-Dragos, "Data-Driven Model-Free Sliding Mode and Fuzzy Control with Experimental Validation," International Journal of Computers Communication and Control, vol. 16, no. 1, 2021.

Performance Improvement of Low-Cost Iterative Learning-Based Fuzzy Control Systems for Tower Crane Systems

[2022]

R.-E. Precup, R.-C. Roman, **E.-L. Hedrea**, C.-A. Bojan-Dragos, M.-M. Damian and M.-L. Nedelcea, "Performance Improvement of Low-Cost Iterative Learning-Based Fuzzy Control Systems for Tower Crane Systems," International Journal of Computers Communication and Control, vol. 17, no. 1, 2022.

A Low Cost Approach to data-driven fuzzy control of servo systems

[2022]

R.-E. Precup, S. Preitl, C.-A. Bojan Dragos, **E.-L. Hedrea**, R.-C. Roman and E.M. Petriu, “A Low Cost Approach to data-driven fuzzy control of servo systems,” Facta Universitatis-Series Mechanical Engineering, vol. 20, no. 1, pp. 21-36, 2022.

Extended Kalman filter and Takagi-Sugeno fuzzy observer for a strip winding system

[2022]

A.-I. Szedlak-Stinean, R.-E. Precup, E.M. Petriu, R.-C. Roman, **E.-L. Hedrea** and C.-A. Bojan-Dragos, "Extended Kalman filter and Takagi-Sugeno fuzzy observer for a strip winding system," Expert Systems With Applications, vol. 208, 2022.

Virtual Reference Feedback Tuning for Position Control of a Twin Rotor Aerodynamic System

[2016]

E.-L. Hedrea, M.-B. Radac and R.-E. Precup, “Virtual Reference Feedback Tuning for Position Control of a Twin Rotor Aerodynamic System,” in Proc. of the IEEE International Symposium on Applied Computational Intelligence and Informatics (SACI), Timisoara, Romania, 2016, pp.57-62.

Evolving Fuzzy Models for the Position Control of Magnetic Levitation Systems

[2017]

R.-E. Precup, C.-A. Bojan Dragos, **E.-L. Hedrea**, M.-D. Rarinca and E.-M. Petriu, “Evolving Fuzzy Models for the Position Control of Magnetic Levitation Systems,” in Proc. of the Conference on Evolving and Adaptive Intelligent Systems (EAIS), Ljubljana, Slovenia, 2017.

Tensor Product-Based Model Transformation for Position Control of Magnetic Levitation Systems

[2017]

E.-L. Hedrea, C.-A. Bojan Dragos, R.-E. Precup, R.-C. Roman, E.-M. Petriu and C. Hedrea, “Tensor Product-Based Model Transformation for Position Control of Magnetic Levitation Systems,” in Proc. of the IEEE International Symposium on Industrial Electronics (ISIE), Edinburgh, Scotland, 2017, pp. 1141-1146.

Tensor Product-Based Model Transformation for Level Control of Vertical Three Tank Systems

[2017]

E.-L. Hedrea, C.-A. Bojan Dragos, R.-E. Precup and T-A. Teban, “Tensor Product-Based Model Transformation for Level Control of Vertical Three Tank Systems,” in Proc. of the 21st IEEE International Conference on Intelligent Engineering Systems (INES), Larnaca, Cyprus, 2017, pp. 113-118.

Evolving Fuzzy Models for Anti-lock Braking Systems

[2017]

R.-E. Precup, C.-A. Bojan Dragos, **E.-L. Hedrea**, I.-D. Borlea, “Evolving Fuzzy Models for Anti-lock Braking Systems,” in Proc. of the IEEE International Conference on Computational Intelligence and Virtual Environments for Measurement Systems and Applications (CIVEMSA), Annecy, France, 2017, pp. 48-53.

Tensor Product-Based Model Transformation Technique Applied to Modeling Vertical Three Tank Systems

[2018]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan Dragos and C. Hedrea, “Tensor Product-Based Model Transformation Technique Applied to Modeling Vertical Three Tank Systems,” in Proc. of the 12th IEEE International Symposium on Applied Computational Intelligence and Informatics (SACI), Timisoara, Romania, 2018, pp. 63-68.

Comparative Study of Control Structures for Maglev Systems

[2018]

E.-L. Hedrea, C.-A. Bojan Dragos, R.-E. Precup and E.-M. Petriu, “Comparative Study of Control Structures for Maglev Systems,” in Proc. of the IEEE International Power Electronics and Motion Control Conference (IPEMC), Budapest, Hungary, 2018, pp. 657-662.

Cascade Control Solutions for Maglev Systems

[2018]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan Dragos, R.-C. Roman, O. Tanasoiu and M. Marinescu, “Cascade Control Solutions for Maglev Systems,” in Proc. of the International Conference on System Theory Control and Computing (ICSTCC), Sinaia, Romania, 2018, pp. 20-26.

Control Solutions for Vertical Three-Tank Systems

[2018]

C.-A. Bojan Dragos, A.-I. Szedlak-Stinean, R.-E. Precup, L. Gurgui, **E.-L. Hedrea** and I.-C. Mituletu, “Control Solutions for Vertical Three-Tank Systems,” in Proc. of the 12th IEEE International Symposium on Applied Computational Intelligence and Informatics (SACI), Timisoara, Romania, 2018, pp. 593-598.

Data-Driven Model-Free Model-Reference Nonlinear Virtual State-Feedback Control from Input-Output Data

[2018]

M.-B. Radac, R.-E. Precup, **E.-L. Hedrea** and I.-C. Mituletu, “Data-Driven Model-Free Model-Reference Nonlinear Virtual State-Feedback Control from Input-Output Data,” in Proc. of the 26th Mediterranean Conference on Control and Automation (MED), Zadar, Croatia, 2018, pp. 332-338.

Discrete time Control Solutions for Inverted Pendulum Crane Mode Control

[2018]

C.-A. Bojan-Dragos, R.-E. Precup, **E.-L. Hedrea**, A. Simo and A. Daia, "Discrete time Control Solutions for Inverted Pendulum Crane Mode Control," in Proc of the 18th IEEE International Symposium on Computational Intelligence and Informatics (CINTI), Budapest, Hungary, 2018, pp. 295-300.

TP-Based Fuzzy Control Solutions for Magnetic Levitation Systems

[2019]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan-Dragos and C. Hedrea, "TP-Based Fuzzy Control Solutions for Magnetic Levitation Systems," in Proc. of the 23rd International Conference on System Theory Control and Computing (ICSTCC), Sinaia, Romania, 2019, pp. 809-814.

Tensor Product-Based Model Transformation Technique Applied to Modeling Magnetic Levitation Systems

[2019]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan-Dragos and O. Tanasoiu, "Tensor Product-Based Model Transformation Technique Applied to Modeling Magnetic Levitation Systems," in Proc. of the 23rd International Conference on Intelligent Engineering Systems (INES), Godollo, Hungary, 2019, pp. 179-184.

MIMO Fuzzy Control Solutions for the Level Control of Vertical Two Tank Systems

[2019]

C.-A. Bojan-Dragos, **E.-L. Hedrea**, R.-E. Precup, A.-I. Szedlak-Stinean and R.-C. Roman, "MIMO Fuzzy Control Solutions for the Level Control of Vertical Two Tank Systems," in Proc. of the 16th International Conference on Informatics in Control, Automation and Robotics (ICINCO), Prague, Czech Republic, 2019, pp. 810-817.

Model-Free Adaptive Control With Fuzzy Component for Tower Crane Systems

[2019]

R.-C. Roman, R.-E. Precup, E.M. Petriu, **E.-L. Hedrea**, C.-A. Bojan-Dragos and M.-B. Radac, "Model-Free Adaptive Control With Fuzzy Component for Tower Crane Systems," in Proc. of the IEEE International Conference on Systems, Man and Cybernetics (SMC), Bari, Italy, 2019, pp. 1384-1389.

Tensor Product-Based Model Transformation and Sliding Mode Control of Electromagnetic Actuated Clutch System

[2019]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan-Dragos, E.M. Petriu and R-C. Roman, "Tensor Product-Based Model Transformation and Sliding Mode Control of Electromagnetic Actuated Clutch System," in in Proc. of the IEEE International Conference on Systems, Man and Cybernetics (SMC), Bari, Italy, 2019, pp. 1402-1407.

Cascade Control Solutions for Level Control of Vertical Three Tank Systems

[2019]

E.-L. Hedrea, R.-E. Precup, C.-A. Bojan-Dragos, C. Hedrea, D. Ples and D. Popovici, "Cascade Control Solutions for Level Control of Vertical Three Tank Systems," in Proc. of the 13th International Symposium on Applied Computational Intelligence and Informatics (SACI), Timisoara, Romania, 2019, pp. 353-358.

First-Order Active Disturbance Rejection-Virtual Reference Feedback Tuning Control of Tower Crane Systems

[2020]

R.-C. Roman, R.-E. Precup, E.M. Petriu, R.-C. David, **E.-L. Hedrea** and A.-I. Szedlak-Stinean, "First-Order Active Disturbance Rejection-Virtual Reference Feedback Tuning Control of Tower Crane Systems," in Proc. of the 24th International Conference on System Theory Control and Computing (ICSTCC), Electr. Network, 2020, pp. 137-142.

Tensor Product-Based Model Transformation Technique Applied to Servo Systems Modeling

[2021]

E.-L. Hedrea, R.-E. Precup, R.-C. Roman, E.M. Petriu, C.-A. Bojan-Dragos and C. Hedrea, "Tensor Product-Based Model Transformation Technique Applied to Servo Systems Modeling," in Proc. of the 30th IEEE International Symposium on Industrial Electronics (ISIE), Kyoto, Japan, 2021.

GWO-Based Optimal Tuning of Type-1 and Type-2 Fuzzy Controllers for Electromagnetic Actuated Clutch Systems

[2021]

C.-A. Bojan-Dragos, R.-E. Precup, S. Preitl, R.-C. Roman, **E.-L. Hedrea** and A.-I. Szedlak-Stinean, "GWO-Based Optimal Tuning of Type-1 and Type-2 Fuzzy Controllers for Electromagnetic Actuated Clutch Systems," in Proc. of the 4th IFAC Conference on Embedded Systems, Computational Intelligence and Telemetics in Control (CESCIT), Valenciennes, France, 2021, pp. 189-194.

Tensor Product-based and State Feedback Structures for Level Control of Vertical Three Tank Systems

[2022]

E.-L. Hedrea, R.-E. Precup, R.-C. Roman, C.-A. Bojan-Dragos, A.-I. Szedlak-Stinean and C. Hedrea, "Tensor Product-based and State Feedback Structures for Level Control of Vertical Three Tank Systems," in of the 26th International Conference on System Theory Control and Computing (ICSTCC), Sinaia, Romania, 2022, pp. 195-200.

AVOA-Based Tuning of Low -Cost Fuzzy Controllers for Tower Crane Systems

[2022]

R.-E. Precup, **E.-L. Hedrea**, R.-C. Roman, E.M. Petriu, C.-A. Bojan-Dragos, A.-I. Szedlak-Stinean and F.-C. Paulescu, "AVOA-Based Tuning of Low -Cost Fuzzy Controllers for Tower Crane Systems," in Proc. of the IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), Padua, Italy, 2022.

Iterative Feedback Tuning Algorithm for Tower Crane Systems

[2022]

R.-C. Roman, R.-E. Precup, **E.-L. Hedrea**, S. Preitl, I.-A. Zamfirache, C.-A. Bojan-Dragos and E.M. Petriu, "Iterative Feedback Tuning Algorithm for Tower Crane Systems," in Proc. of the 8th International Conference on Information Technology and Quantitative Management (2020&2021): Developing Global Digital Economy after COVID-19, Chengdu, China, 2022, pp. 157-165.

GWO-Based Optimal Tuning of Controllers for Shape Memory Alloy Wire Actuators

[2022]

C.-A. Bojan-Dragos, R.-E. Precup, E.M. Petriu, R.-C. Roman, **E.-L. Hedrea** and A.-I. Szedlak-Stinean, "GWO-Based Optimal Tuning of Controllers for Shape Memory Alloy Wire Actuators," in Proc. of the 6th IFAC Conference on Intelligent Control and Automation Sciences (ICONS), Cluj-Napoca, Romania, 2022, pp. 39-44.

Tensor Product-based and State Feedback Control Solutions for Cart Position Control of Pendulum-Cart Systems

[2023]

E.-L. Hedrea, Precup Radu-Emil, Roman Raul-Cristian, Hedrea Ciprian, "Tensor Product-based and State Feedback Control Solutions for Cart Position Control of Pendulum-Cart Systems," Proc. Of the 27th International Conference on System Theory, Control and Computing (ICSTCC), Timisoara, Romania.

Sliding Mode and Super-Twisting Sliding Mode Control Structures for SMA Actuators

[2023]

Bojan-Dragos Claudia-Adina, Precup Radu-Emil, Szedlak-Stinean Alexandra-Iulia, Roman Raul-Cristian, **E.-L. Hedrea**, Petriu Emil M., "Sliding Mode and Super-Twisting Sliding Mode Control Structures for SMA Actuators," Proc. of the European Control Conference (ECC), Bucharest, Romania, 2023.

Fictitious Reference Iterative Tuning of Intelligent Proportional-Integral Controllers for Tower Crane Systems

[2023]

Roman Raul-Cristian, Precup Radu-Emil, Petriu Emil M., Muntyan M., **E.-L. Hedrea**, "Fictitious Reference Iterative Tuning of Intelligent Proportional-Integral Controllers for Tower Crane Systems," Proc. Of the 31st Mediterranean Conference on Control and Automation (MED), Limassol, Cyprus, 2023.

SMA-Based Tuning of PI Controller Using Takagi-Sugeno Fuzzy Observers for an Electromechanical System with Variable Parameters

[2023]

Szedlak-Stinean Alexandra-Iulia, Precup Radu-Emil, Roman Raul-Cristian, Petriu Emil M., **E.-L. Hedrea**, "SMA-Based Tuning of PI Controller Using Takagi-Sugeno Fuzzy Observers for an Electromechanical System with Variable Parameters," Proc. Of the 9th Conference on Control, Decision and Information Technologies (CoDIT), Rome, Italy, 1761-1768, 2023.

Slime Mold Algorithm-Based Performance Improvement of PD-Type Indirect Iterative Learning Fuzzy Control of Tower Crane Systems

[2023]

Precup Radu-Emil, Roman Raul-Cristian, **E.-L. Hedrea**, Petriu Emil M., Bojan-Dragos Claudia-Adina, Szedlak-Stinean Alexandra-Iulia., "Slime Mold Algorithm-Based Performance Improvement of PD-Type Indirect Iterative Learning Fuzzy Control of Tower Crane Systems," Proc. of the 57th Annual Conference on Information Sciences and Systems, Baltimore, Maryland, 1-6., 2023.

DISTINCȚII ONORIFICE ȘI PREMII

Premiul "Tudor Tănăsescu" al Academiei Române

Academia Română [2023]

Premiul pentru excelență în cercetare

Universitatea Politehnica Timișoara [2019]

COMPETENȚE ORGANIZATORICE

Membru comitet organizare Conferințe

1. IEEE 23rd International Conference on System Theory, Control and Computing (ICSTCC), October 9-11, 2019, Sinaia, Romania.
2. IEEE 12th International Symposium on Applied Computational Intelligence and Informatics (2020), Timisoara, Romania
3. IEEE 12th International Symposium on Applied Computational Intelligence and Informatics (2021), Timisoara, Romania
4. IEEE 16th International Symposium on Applied Computational Intelligence and Informatics (2022), Timișoara, Romania

5. IEEE 17th International Symposium on Applied Computational Intelligence and Informatics (2023), Timișoara, Romania
6. 27th International Conference on System Theory, Control and Computing (ICSTCC), October 11-13, 2023, Timisoara, Romania