

CURRICULUM VITAE

Erdal KAYACAN

Associate Professor (Tenured)
Aarhus University, Department of Engineering
Electrical and Computer Engineering
Senior Member of IEEE
Associate Editor of the IEEE Transactions on Fuzzy Systems

PERSONAL DATA

ADDRESS: Aarhus University, Department of Engineering, room 0.13,
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GOOGLE SCHOLAR: <https://scholar.google.com.sg/citations?user=50TLpi4AAAAJ&hl=en>

WORK EXPERIENCE

Current | **Associate Professor** (Tenured), AARHUS UNIVERSITY, Denmark
APRIL 2018 | *Department of Engineering*

APRIL 2018 | **Assistant Professor**, NANYANG TECHNOLOGICAL UNIVERSITY, Singapore
MAR 2014 | *School of Mechanical and Aerospace Engineering*

MAR 2014 | **Post-doctoral Researcher**, KATHOLIEKE UNIVERSITEIT LEUVEN, Belgium
SEP 2011 | *Division of Mechatronics, Biostatistics and Sensors*

SEP 2011 | **Teaching Assistant**, BOGAZICI UNIVERSITY, Istanbul, Turkey
AUG 2005 | *Department of Electrical and Electronic Engineering*

FEB 2005 | **Electrical Engineer**, ARCELIK CORPORATION, Istanbul, Turkey
SEP 2004 | *Department of Research and Development*

EDUCATION

SEP 2011 | **Ph.D.** in ELECTRICAL AND ELECTRONICS ENGINEERING, Bogazici University, Istanbul
Major: Control theory

JUN 2006 | **M.Sc.** in SYSTEMS AND CONTROL ENGINEERING, Bogazici University, Istanbul
Major: Control theory

JUN 2003 | **B.Sc.** in ELECTRICAL ENGINEERING, Istanbul Technical University, Istanbul

RESEARCH INTERESTS

My main research interests and contributions lie within the areas of control systems, machine learning and robotic vision with applications in guidance, control and automation of unmanned ground and aerial vehicles.

RESEARCH IMPACT (BY 15.07.2019)

	Google Scholar	Scopus	Web of Science
Total citation	2775	2060	1379
H-index	27	24	19

PROJECTS DIRECTED (ONGOING)

PRESENT | Visualisation of Virtual Outcrops Using Aerial Robots
APRIL 2019 | by Technical University of Denmark, Danish Hydrocarbon Research and Technology Centre

PROJECTS DIRECTED (DIRECTED)

MARCH 2019 | Learning-based path planning of unmanned aerial vehicles with vision-based sensing
MARCH 2018 | by Ministry of Education Academic Research Funding Tier 1

APRIL 2018 | Fuzzy neural network-based learning control of unmanned aerial vehicles
JAN 2016 | by ST Eng-NTU Corporation Laboratory

APRIL 2018 | Design of lightweight UAV for 3D Printing
JAN 2014 | by NRF Medium-Sized Centre

DEC 2017 | Precise landing for unmanned aerial vehicles
JUL 2015 | by ST Eng-NTU Corporation Laboratory

JAN 2017 | Quality Inspection and Assessment Robot (Quicabot)
JULY 2015 | by JTC Corporation - NRF Singapore

MAR 2017 | Learning control algorithms for unmanned aerial vehicles
MAY 2014 | by Nanyang Technological University (Start up grant)

AUG 2017 | Model predictive control-moving horizon estimation framework as applied to tilt rotor UAVs and its experimental evaluation
MAR 2015 | by Ministry of Education Academic Research Funding Tier 1

TEACHING EXPERIENCE

PRESENT | CONMOB - F - EE 3 Control of Mobile Robots
AUG 2019 | Graduate level

APRIL 2018 | MA3703 Flight Dynamics
AUG 2014 | Undergrad Year 3

APRIL 2018 | MA4705 Aircraft Navigation and Flight Computers
AUG 2014 | Undergrad Year 4

APRIL 2018 | MA3005-MP3001-MA3705 Control Theory
JAN 2016 | Undergrad Year 3

APRIL 2018 | MA6643 Advanced Flight Dynamics
AUG 2016 | Graduate level

AFFILIATIONS

JAN 2005 - PRESENT | IEEE Member
MAR 2012 - PRESENT | IEEE Senior Member
JAN 2015 - PRESENT | IEEE Computational Intelligence Society Member

SERVICE

JAN 2017 - PRESENT Associate Editor, **IEEE Transactions on Fuzzy Systems**
JAN 2016 - APRIL 2018 IEEE Singapore Computational Intelligence Society Chapter Committee
JAN 2015 - JAN 2016 IEEE Singapore Section Executive Committee Member

INVITED LECTURES AND TALKS

24 JUNE 2019 Invited talk, International Conference on Fuzzy Systems-FUZZ IEEE 2019
New Orleans, USA
Title: *Learning control and knowledge transfer between aerial robots for improved accuracy in trajectory tracking*

5 DEC 2018 Keynote speech, RCBigBang conference **Dalum Landbrugsskole, Odense, Denmark**
Title: *Challenges and opportunities with drones*

13 SEP 2018 Keynote speech, InnoDrone conference **Odense Congress Center, Denmark**
Title: *Uncertainty-based learning control applied to robots and drones*

13 OCT 2017 IEEE Singapore Section CIS Society Tutorial, **Nanyang Technological University, Singapore**
Title: *Towards more interpretable type-2 fuzzy logic controls as applied to aerial robotics*

9-12 JUL 2017 Tutorial in **FUZZ IEEE 2017–IEEE International Conference on Fuzzy Systems**,
Title: *Vision-Based Control of UAVs Using Type-1 and Type-2 FLCs with ROS*

4 NOV 2016 IEEE Singapore Section CIS Society Tutorial, **Nanyang Technological University, Singapore**
Title: *Type-2 fuzzy neural network-based control*

23-24 MAY 2016 Research Seminar, **Istanbul Technical University, Istanbul**
Title: *Type-2 fuzzy neural network-based control*

16-20 NOV 2015 Research Seminar, **The University of Nottingham, United Kingdom**
Title: *Type-2 fuzzy neural network-based control*

11-15 FEB 2008 Lecture Tutorial, **ISESCO-Training Workshop on Mechatronics, Morocco**

16-20 NOV 2007 Lecture Tutorial, **ISESCO-Mechatronics and its Applications to Enhance Industrial Productivity, Indonesia**

FELLOWSHIPS

SEP-DEC 2009 Research Fellowship of Norway Research Council, **University of Oslo, Norway**

LANGUAGES

TURKISH: Native
ENGLISH: Fluent
DUTCH: Elementary
FRENCH: Beginner
DANISH: Beginner

PHD STUDENTS

- Yunus Govdeli (PhD, August 2015 intake): Autonomous Flight Control of a 3D Printed Lightweight Flying Wing VTOL Unmanned Aerial Vehicle
- Efe Camci (PhD, August 2015 intake): Enhanced Path Planning of UAVs by Artificial Intelligence Methods
- Nursultan Imanberdiyev (PhD, August 2015 intake): Towards Aerial Manipulation: Intelligent Control approach for Unmanned Aerial Manipulators
- Mohit Mehndiratta (PhD, January 2016 intake): Online Learning-based Control of Unmanned Aerial Vehicles Incorporating Dynamic Optimisation

- Andriy Sarabakha (PhD, January 2016 intake): Learning Control of Unmanned Aerial Vehicles Using Artificial Intelligence-Based Methods
- Ilker Bozcan (PhD, October 2018 intake): Vision-based weed detection and removal using agricultural robots

GRADUATED MASTER STUDENTS

- Theo Morales (2018-19 AY): Synthetic images for convolutional neural networks in autonomous drone racing
- Ricardo Molina (2017-18 AY): Implementation and Test of Retrospective Cost Adaptive Controller for a Quadcopter with Varying Configuration Parameters
- Manivannan Ajaykumar (2016-17 AY): Collective Dynamic Response of a Leader-Follower Networked System Governed by Distributed Consensus Dynamic
- Patel Siddharth Hitesh (2016-17 AY): Mathematical Modelling and System Identification of Tilt-rotor Tricopter

GRADUATED FINAL YEAR STUDENTS

- Wang Qile (2017-18 AY): Deep neural network for improving trajectory tracking of unmanned aerial vehicle
- Beh Chun Jye (2017-18 AY): Quarter car modelling and control
- Ang Jun Ping (2017-18 AY): Design of Unmanned Aerial Vehicle Delivery Box
- Aaron Kok Chi Han (2017-18 AY): Development of a Multi-Rotor VTOL UAV: Control of a Multi Rotor VTOL UAV for a Variable Payload Location
- Low Jing Ming (2017-18 AY): Internal Structure Design and Manufacturing of 3D-Printed UAV
- Sia Wen Xuan (2017-18 AY): Design and Manufacturing of a multi-DOF robotic arm for rotary-wing UAV
- Tan Kuan Hong (2017-18 AY): Design and development of a gripper for unmanned aerial vehicle
- Lieu Shi Yang (2017-18 AY): Implementation and integration of a closed-loop system for industrial external axes on robotized paint applications
- Tan Kuan Hong (2017-18 AY): Design and development of a gripper for unmanned aerial vehicle
- Lee Ying Jun Wilson (2017-18 AY): Fly Without Borders with Additive Manufacturing: A Microscale Tilt-Rotor Tricopter Design
- Josephine Monica (2017-18 AY): The Development of the ROS-Gazebo Package for a Rotary-Wing UAV Equipped with a Robotic Arm
- Clement Foo Dun Jie (2017-18 AY): Design of Vertical Take-off Landing Quadplane
- Tay Jia Hui (2017-18 AY): Computational Fluid Dynamics(CFD) Analysis of a 3D-printed UAV
- Wong Chong Yin (2017-18 AY): Design and manufacturing of a multi-DOF lightweight aerial manipulator for rotary-wing UAV
- Wan Yi (2017-18 AY): Dual Rotor VTOL Fixed-wing UAV with 3D Printing
- Ryan Chin (2017-18 AY): Design of process monitoring system of extrusion based 3D printers
- Philip Puan Jun Kit (2017-18 AY): Control of a multi-DOF lightweight aerial manipulator for rotary-wing UAV
- Ng Wee Song (2017-18 AY): Design, Build and Control of a Gripper for UAV
- Daveena Raju Kripalani (2017-18 AY): Wind Tunnel Testing of a 3D Printed Flying Wing VTOL UAV
- Gerard Ong Zi Quan (2017-18 AY): Feasibility Studies of Techniques to Strengthen 3D Printed UAV
- Reinaldo Maslim (2016-17 AY): Navigation and map representation in indoor environment for an automated construction quality assessment robot system
- Kenny Brian (2016-17 AY): Fabrication and Real-Time Testing of a Tilt-Rotor Tricopter
- Goh Chian Kai (2016-17 AY): Small-size UAV design and control

- Haja Najimudeen S/O Salahutheen (2016-17 AY): Design of 3D Printed UAV Structure
- Nicholas Lee Han Chun (2016-17 AY): Design and fabrication of a landing wheel mechanism for a quadcopter
- Tran Anh Thong (2016-17 AY): Design and Manufacturing of a VTOL UAV by 3D Printing
- Shavin Goswami (2016-17 AY): Design, manufacturing and testing of a flying car
- Lin Xibang (2016-17 AY): Pan-Tilt Camera control for precise landing of UAVs
- Benjamin Tan (2016-17 AY): Pan-Tilt Camera Stabilization and Control
- Jason Sia Hong Jie (2016-17 AY): Design and Manufacturing of a Tilt-Rotor Bicopter Experimental Setup
- Low Chin Leong (2015-16 AY): Sensory system design for an Automated Construction Quality Assessment Robot System
- Soong Jin Xian (2015-16 AY): Design and realization of a twin rotor system
- Cowan Bruce Michael Alexander (2015-16 AY): Precise landing for unmanned aerial vehicles for an undefined target object
- Ashwani Kumar Rai (2015-16 AY): Precise landing for unmanned aerial vehicles for an pre-defined target object
- Devesh Raju Kripalani (2015-16 AY): A Simulation Study on Fuzzy Logic Control of a Quadcopter UAV using a PSO-SMC Hybrid Learning Algorithm
- Ma Linlu (2015-16 AY): Adaptive Neuro-Fuzzy Logic Learning-Based Control of a Quad-Rotor
- Yeo Li Hao Lincoln (2015-16 AY): Modeling and Identification of Tricopter Unmanned Aerial Vehicle
- Agustinus Benyamin Prasetyo (2015-16 AY): Design and realization of a tilting mechanism
- Babarenda Guruge Prasanna Madushan Guruge (2014-15 AY): Automatic UAV Launcher With Bluetooth Low Energy Integrated Electromagnetic Releasing System
- Thenmugilian Gandhi (2014-15 AY): Development and Implementation of Vision-based Techniques for Target Identification
- Raman Akshay (2014-15 AY): Development of New Control Algorithms for High Performance Autopilots
- Ng Jun Hao Nicholas (2014-15 AY): Energy harvesting via piezoceramics in unmanned aerial vehicles

CONFERENCE RELATED ACTIVITIES

Associate Editor	IROS 2019 – 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems, The Venetian Macao, Macau, China, 3-8 November 2019.
Associate Editor	IROS 2018 – 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems, Madrid, Spain, 1-5 October 2018.
Tutorial Organizer	FUZZ IEEE 2017 – IEEE International Conference on Fuzzy Systems, Naples, Italy, 9-12 July 2017, <i>Vision-Based Control of UAVs Using Type-1 and Type-2 FLCs with ROS</i> by Erdal Kayacan and Changhong Fu
Special Session Organizer	FUZZ IEEE 2017 – IEEE International Conference on Fuzzy Systems, Naples, Italy, 9-12 July 2017, <i>Type-1 and type-2 neuro fuzzy systems: quo vadis?</i> by Erdal Kayacan; Mojtaba Ahmadih Khanesar and Mohammad Biglarbegian

- Special Session Organizer FUZZ IEEE 2017 – IEEE International Conference on Fuzzy Systems, Naples, Italy, 9-12 July 2017,
Advances to fuzzy logic control
by Tufan Kumbasar; Erdal Kayacan and Hao Ying
- Special Session Organizer IEEE TENCON 2016 – Technolis for Smart Nation, Marina Bay Sands, Singapore, 22-25 November 2016,
Computational Intelligence Techniques and Applications
by Justin Dauwels, Lipo Wang, Erdal Kayacan; Teck Hou Teng
- Publication Co-Chair IEEE ASCC 2013 - Asian Control Conference
23-26 June, Istanbul, Turkey
- Special Session Organizer IEEE ASCC 2013 - Asian Control Conference Istanbul, 23-26 June 2013,
Complex Mechatronic Systems
by Erdal Kayacan, Peter Vrancx and Wouter Saeys
- Special Session Organizer IEEE ASCC 2013 - Asian Control Conference Istanbul, 23-26 June 2013,
Fuzzy Logic Systems and Applications
by Erdal Kayacan and Mojtaba A. Khanesar
- Publication Co-Chair SMC 2010 - IEEE International Conference on Systems, Man, and Cybernetics
10–13 October, Istanbul, Turkey
- Local organizing committee ALCOSP 2010 - IFAC International Workshop on Adaptation and Learning in Control and Signal Processing
26–28 August, Antalya, Turkey
- Local organizing committee PSYCO 2010 - IFAC International Workshop on Periodic Control Systems
26–28 August, Antalya, Turkey
- Local organizing committee ITHET 2010 - International Conference on Information Technology Based Higher Education and Training
29 April–1st May 2010 August, Cappadocia, Turkey
- Publication Chair DEST 2009 - IEEE International Conference on Digital Ecosystems and Technologies
31th May-3rd June 2009, Istanbul, Turkey
- Publication Chair ICONS 2009 - IFAC International Conference on Intelligent Control Systems and Signal Processing
21-23 Sept 2009, Istanbul, Turkey
- Publication Chair ISOT 2009 - International Symposium on Optomechatronic Technologies
21-23 Sept 2009, Istanbul, Turkey
- Local organizing committee VECIMS 2008 - IEEE Conference on Virtual Environments, Human-Computer Interfaces and Measurement Systems
14-16 July 2008, Istanbul, Turkey
- Local organizing committee CIMSA 2008 - IEEE Conference on Computational Intelligence for Measurement Systems and Applications
14-16 July 2008, Istanbul, Turkey
- Local organizing committee VSS 2008, - 10th International Workshop on Variable Structure Systems
8-10 June 2008, Antalya, Turkey
- Local organizing committee IEMDC 2007 - IEEE International Electric Machines and Drives Conference
3-5 May 2007, Antalya, Turkey

Books Indexed by SCI or SCIE (in English):

1. Erdal Kayacan and Mojtaba A. Khanesar, “Fuzzy Neural Networks for Real Time Control Applications, Concepts, Modeling and Algorithms for Fast Learning”, 1st Edition, **Butterworth-Heinemann**, Print Book ISBN:9780128026878. (17 Sept 2015)

Book Chapters Indexed by SCI or SCIE (in English):

4. Mohit Mehndiratta, Erkan Kayacan, Siddharth Patel, Erdal Kayacan and Girish Chowdhary, “Learning-based Fast Nonlinear Model Predictive Control for Custom-made 3D Printed Ground and Aerial Robots”, **Handbook of Model Predictive Control**, Editors: Sasa V. Rakovic, William S. Levine, pp. 581-605, Birkhäuser Basel. Hardcover ISBN: 978-3-319-77488-6
3. Erkan Kayacan, Erdal Kayacan, I-Ming Chen, Herman Ramon, and Wouter Saeys, “On The Comparison of Model-Based and Model-Free Controllers in Guidance, Navigation and Control of Agricultural Vehicles”, In: John R., Hagrass H., Castillo O. (eds) Type-2 Fuzzy Logic and Systems. Studies in Fuzziness and Soft Computing, vol 362, pp. 49-73, Springer, Cham.
2. I-Ming Chen, Ehsan Asadi, Jiancheng Nie, Rui-Jun Yan, Wei Chuan Law, Erdal Kayacan, Song Huat Yeo, Kin Huat Low, Gerald Seet and Robert Tiong, “Innovations in Infrastructure Service Robots”, ROMANSY 21 - Robot Design, Dynamics and Control: Proceedings of the 21st CISM-IFTOMM Symposium, **Springer International Publishing**, Editor: Vincenzo Parenti-Castelli and Werner Schiehlen, June 20-23, Udine, Italy, pp. 3-16, 2016. Print Book ISBN: 978-3-319-33713-5.
1. Mojtaba A. Khanesar and Erdal Kayacan, “Controlling the Pitch and Yaw Angles of a 2-DOF Helicopter Using Interval Type-2 Fuzzy Neural Networks”, Recent Advances in Sliding Modes: From Control to Intelligent Mechatronics, Studies in Systems, Decision and Control, **Springer International Publishing**, vol. 24, pp. 349-370, 2015. Print Book ISBN: 978-3-319-18289-6.

Journal Papers Indexed by SCI or SCIE (in English):

50. Mohit Mehndiratta and Erdal Kayacan, “A Constraint Instantaneous Learning Approach for Aerial Package Delivery Robots: On-board Implementation and Experimental Results”, **Autonomous Robots**, (In press)
49. Andriy Sarabakha, Changhong Fu and Erdal Kayacan “Intuit Before Tuning: Type-1 and Type-2 Fuzzy Logic Controllers, **Applied Soft Computing** (In press)
48. Siddharth Patel, Andriy Sarabakha, Dogan Kircali and Erdal Kayacan “An Intelligent Hybrid Artificial Neural Network-Based Approach for Control of Aerial Robots”, **Journal of Intelligent and Robotic Systems** (In press)
47. Efe Camci and Erdal Kayacan “Learning motion primitives for planning swift maneuvers of quadrotor”, **Autonomous Robots**, (In press)
46. Nursultan Imanberdiyev and Erdal Kayacan, “A Fast Learning Control Strategy for Unmanned Aerial Manipulators”, **Journal of Intelligent & Robotic Systems**, vol. 94, Issue 3–4, pp. 805–824, June 2019
45. Rui-Jun Yan, Erdal Kayacan, I-Ming Chen, Lee Kong Tiong and Jing Wu “QuicaBot: Quality Inspection and Assessment Robot” **IEEE Transactions on Automation Science and Engineering** , vol.16, no.2, pp. 506-517, April 2019
44. Changhong Fu, Ran Duan and Erdal Kayacan, “Visual Tracking with Online Structural Similarity-Based Weighted Multiple Instance Learning” **Information Sciences**, vol. 481, pp. 292-310, May 2019
43. Suraj Ravindrababu, Yunus Govdeli, Zhuo Wei Wong, and Erdal Kayacan, “Evaluation of the Influence of Build and Print Orientations of Unmanned Aerial Vehicle Parts Fabricated Using Fused Deposition Modeling Process”, **Journal of Manufacturing Processes**, vol. 34, Part A, pp. 659-666, August 2018
42. Changhong Fu, Andriy Sarabakha, Erdal Kayacan, Christian Wagner, Robert John and Jonathan M. Garibaldi, “Input Uncertainty Sensitivity Enhanced Non-Singleton Fuzzy Logic Controllers for Long-Term Navigation of Quadrotor VTOL UAVs”, **IEEE/ASME Transactions on Mechatronics**, vol. 23, no. 2, pp. 725-734, April 2018

41. Imo Eyoh, Robert John, Geert De Maere and Erdal Kayacan, "Hybrid Learning for Interval Type-2 Intuitionistic Fuzzy Logic Systems as applied to Identification and Prediction Problems, **IEEE Transactions on Fuzzy Systems** (In press).
40. Efe Camci, Devesh Raju Kripalani, Linlu Ma, Erdal Kayacan and Mojtaba Ahmadiéh Khanesar, "An Aerial Robot for Rice Farm Quality Inspection With Type-2 Fuzzy Neural Networks Tuned by Particle Swarm Optimization-Sliding Mode Control Hybrid Algorithm, **Swarm and Evolutionary Computation**, vol.41, pp.1-8, August 2018
39. Andriy Sarabakha, Changhong Fu, Erdal Kayacan and Tufan Kumbasar, "Type-2 Fuzzy Logic Controllers Made Even Simpler: From Design to Deployment in Real-Time for Quadcopter UAVs", **IEEE Transactions on Industrial Electronics**, vol. 65, no. 6, pp. 5069-5077, June 2018
38. Erdal Kayacan, Andriy Sarabakha, Simon Coupland, Robert John and Mojtaba Ahmadiéh Khanesar, "Type-2 Fuzzy Elliptic Membership Functions for Modeling Uncertainty", **Engineering Applications of Artificial Intelligence**, vol. 70, pp.170-183, April 2018
37. Yiqun Dong, Efe Camci and Erdal Kayacan, "Faster RRT-based Nonholonomic Path Planning in 2D Building Environments Using Skeleton-constrained Path Biasing", **Journal of Intelligent & Robotic Systems**, vol.89, no.89, issue.3-4, pp. 387-401, March 2018
36. Anna Prach and Erdal Kayacan, "An MPC-based Position Controller for a Tilt-Rotor Tricopter VTOL UAV", **Optimal Control, Applications and Methods**, vol.39, no.1, pp. 343-356, Jan 2018
35. Andriy Sarabakha, Nursultan Imanberdiyev, Erdal Kayacan, Mojtaba Ahmadiéh Khanesar and Hani Hagraš, "Novel Levenberg-Marquardt Based Learning Algorithm for Unmanned Aerial Vehicles", **Information Sciences**, vol.417, pp. 361-380, November 2017
34. Ran Duan, Changhong Fu and Erdal Kayacan, "Tracking-Recommendation-Detection", **Engineering Applications of Artificial Intelligence** vol.64, pp.128-139, September 2017
33. Utku Eren, Anna Prach, Basaran Bahadır Kocer, Sasa Rakovic, Erdal Kayacan, and Behcet Acikmese, "Model Predictive Control in Aerospace Systems: Current State and Opportunities" **AIAA Journal of Guidance, Control and Dynamics**, vol.40, no.7, pp.1541-1566, June 2017
32. Lily Liu, Rui-Jun Yan, Varun Maruvanchery, Erdal Kayacan, I-Ming Chen and Tiong Lee Kong, "TLCAF: Transferred Learning on Convolutional Activation Feature as Applied to a Building Quality Assessment Robot", **International Journal of Advanced Robotic Systems**, vol.14, no.3, pp.1-12, June 2017
31. Mohit Mehndiratta and Erdal Kayacan, "Receding Horizon Control of 3 DOF Helicopter Using Online Estimation of Aerodynamic Parameters", **Proceedings of the Institution of Mechanical Engineers Part G-Journal of Aerospace Engineering**, vol.232, no.8, pp.1442-1453, June 2017
30. Erdal Kayacan and Reinaldo Maslim, "Type-2 Fuzzy Logic Trajectory Tracking Control of Quadrotor VTOL Aircrafts With Elliptic Membership Functions", **Mechatronics, IEEE/ASME Transactions on**, vol.22, no. 1, pp. 339-348, February 2017
29. Erdal Kayacan, Mojtaba Ahmadiéh Khanesar, Jaime Rubio Hervas and Mahmut Reyhanoglu, "Learning control of fixed-wing unmanned aerial vehicles using fuzzy neural networks", **International Journal of Aerospace Engineering**, Article ID 5402809, vol. 2017 (2017), pp.1-12.
28. Rui-Jun Yan, Jing Wu, Ji Yeong Lee, Abdul Manan Khan, Chang-Soo Han, Erdal Kayacan, I-Ming Chen "A Novel Method for 3D Reconstruction: Division and Merging of Overlapping B-spline surfaces", **Computer-Aided Design**, vol.81, pp.14-23, December 2016
27. Changhong Fu, Ran Duan, Dogan Kircali and Erdal Kaycan, "Onboard Robust Visual Tracking for UAVs Using a Reliable Global-Local Object Model", **Sensors**, vol.16, no.9, pp. 1406, 2016
26. Saima Hassan, Mojtaba Ahmadiéh Khanesar, Erdal Kayacan, Jafreezal Jaafar and Abbas Khosravi "Optimal design of adaptive type-2 neuro-fuzzy systems: A review", **Applied Soft Computing**, vol.44, pp.134-143, July 2016
25. Tien Thanh Nguyen, Koenraad Vandevoorde, Niels Wouters, Erdal Kayacan, Josse De Baerdemaeker and Wouter Saeyš "Detection of red and bicoloured apples on tree with an RGB-D camera", **Biosystems Engineering**, vol.146, pp. 33-44, June 2016

24. Jaime Rubio Hervas, Mahmut Reyhanoglu, Hui Tang and Erdal Kayacan, “Nonlinear control of fixed-wing UAVs in presence of stochastic winds”, **Communications in Nonlinear Science and Numerical Simulation**, vol.33, pp.57-69, April 2016
23. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys, “Towards agrobots: Identification of the yaw dynamics and trajectory tracking of an autonomous tractor”, **Computers and Electronics in Agriculture**, vol.115, pp.78-87, July 2015
22. Mojtaba A. Khanesar, Erdal Kayacan, Mahmut Reyhanoglu and Okyay Kaynak, “Feedback Error Learning Control of Magnetic Satellites Using Type-2 Fuzzy Neural Networks With Elliptic Membership Functions”, **Cybernetics, IEEE Transactions on**, vol.45, no.4, pp.858-868, April 2015
21. Erkan Kayacan, Erdal Kayacan and Mojtaba A. Khanesar, “Identification of Nonlinear Dynamic Systems Using Type-2 Fuzzy Neural Networks - A Novel Learning Algorithm and a Comparative Study”, **Industrial Electronics, IEEE Transactions on**, vol.62, no.3, pp.1716–1724, March 2015
20. Erdal Kayacan, Erkan Kayacan, Herman Ramon, Okyay Kaynak and Wouter Saeys, “Towards Agrobots: Trajectory Control of an Autonomous Tractor Using Type-2 Fuzzy Logic Controllers”, **Mechatronics, IEEE/ASME Transactions on**, vol.20, no.1, pp.287-298, February 2015
19. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys, “Robust Tube-based Decentralized Nonlinear Model Predictive Control of an Autonomous Tractor-Trailer System”, **Mechatronics, IEEE/ASME Transactions on**, vol.20, no.1, pp.447-456, February 2015
18. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys, “Learning in Centralized Nonlinear Model Predictive Control: Application to an Autonomous Tractor-Trailer System”, **IEEE Transactions on Control Systems Technology**, vol.23, no.1, pp. 197-205, January 2015
17. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys, “Distributed nonlinear model predictive control of an autonomous tractor-trailer system”, **Mechatronics**, vol.24, no.8, pp. 926-933, December 2014
16. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys, “Nonlinear Modeling and Identification of an Autonomous Tractor-Trailer System”, **Computers and Electronics in Agriculture**, v.106, pp 1-10, August 2014
15. Kenny Nona, Bart Lenaerts, Erdal Kayacan, Wouter Saeys, “Bulk compression characteristics of straw and hay”, **Biosystems Engineering**, v. 118, pp. 194-202, February 2014
14. Tom Kraus, Joachim Ferreau, Erdal Kayacan, Herman Ramon, Josse De Baerdemaeker, Moritz Diehl, Wouter Saeys, “Moving horizon estimation and nonlinear model predictive control for autonomous agricultural vehicles”, **Computers and Electronics in Agriculture**, v. 98, pp. 25-33, October 2013
13. Rahib H. Abiyev, Okyay Kaynak and Erdal Kayacan, “A Type-2 Fuzzy Wavelet Neural Network for System Identification and Control”, **Journal of The Franklin Institute**, v.350, no:7, pp. 1658-1685, September 2013
12. Erkan Kayacan, Erdal Kayacan, Herman Ramon and Wouter Saeys , “Adaptive Neuro-Fuzzy Control of a Spherical Rolling Robot Using Sliding Mode Control Theory-Based Online Learning Algorithm”, **IEEE Transactions on Systems, Man, and Cybernetics Part B: Cybernetics**, v.43, no:1, pp. 170-179, February 2013
11. Mojtaba A. Khanesar, Erdal Kayacan, Mohammad Teshnehlab and Okyay Kaynak, “Extended Kalman Filter Based Learning Algorithm for Type-2 Fuzzy Logic Systems and its Experimental Evaluation”, **IEEE Transactions on Industrial Electronics**, v.59, no:11, pp. 4443-4455, November 2012
10. Erdal Kayacan, Ozkan Cigdem and Okyay Kaynak, “Sliding Mode Control Approach for Online Learning as Applied to Type-2 Fuzzy Neural Networks and its Experimental Evaluation”, **IEEE Transactions on Industrial Electronics**, v.59, no:9, pp. 3510-3520, September 2012
9. Erdal Kayacan and Okyay Kaynak, “Sliding Mode Control Theory-based Algorithm for Online Learning in Type-2 Fuzzy Neural Networks: Application to Velocity Control of an Electro Hydraulic Servo System”, **International Journal of Adaptive Control and Signal Processing**, v. 26, no: 7, pp. 645-659, July 2012

8. Erdal Kayacan, Yesim Oniz, Ayse C. Aras, Okyay Kaynak and Rahib H. Abiyev, “A Servo System Control with Time-varying and Nonlinear Load Conditions Using Type-2 TSK Fuzzy Neural System”, **Applied Soft Computing**, v.11, no:8, pp. 5735-5744, December 2011
7. Mojtaba A. Khanesar, Erdal Kayacan, Mohammad Teshnehlab, and Okyay Kaynak, “Analysis of the Noise Reduction Property of Type-2 Fuzzy Logic Systems Using a Novel Type-2 Membership Function”, **Systems, Man, and Cybernetics, Part B: Cybernetics, IEEE Transactions on**, v.41, no:5, pp. 1395-1406, October 2011
6. Erdal Kayacan and Okyay Kaynak, “Single-step Ahead Prediction Based on the Principle of Concatenation Using Grey Predictors”, **Expert Systems With Applications**, v.38, no:8, pp. 9499-9505, August 2011
5. Andon V. Topalov, Yesim Oniz, Erdal Kayacan and Okyay Kaynak, “Neuro-Fuzzy Control of Antilock Braking System Using Sliding Mode Incremental Learning Algorithm”, **Neurocomputing**, v.74, no:11, pp. 1883-1893, May 2011
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