Curriculum Vitae: Karl von Ellenrieder

February 6, 2026

Full Name and Title

Karl Dietrich von Ellenrieder, Ph.D.
Professor

Professional Address: Facoltá di Ingegneria
Libera Università di Bolzano
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Country of Citizenship

United States

Academic/Professional Qualifications & Training

Ph.D.	Aeronautics & Astronautics, Stanford University, Stanford, CA USA	1998
M.S.	Aeronautics & Astronautics, Stanford University, Stanford, CA USA	1992
B.S.	Aeronautics & Astronautics (Avionics Specialization), Massachusetts Institute of Technology, Cambridge, MA USA	1991

Current Appointment

Full Professor	Facoltá di Ingegneria, Libera Università di Bolzano (2016–present).

Previous Appointments

Research Professor	Dept. Ocean & Mechanical Engineering, Florida Atlantic University, USA (2016–2021).
Full Professor	Dept. Ocean & Mechanical Engineering, Florida Atlantic University, USA (2014–2016).
Associate Director	SeaTech Institute for Ocean Systems Engineering, Florida Atlantic University, USA (2014–2016).
Associate Professor	Dept. Ocean & Mechanical Engineering, Florida Atlantic University, USA (2008–2014).
Assistant Professor	Dept. Ocean Engineering, Florida Atlantic University, USA (2003–2008).
Research Fellow	Dept. Mechanical Engineering, Monash University, Australia (1998–2003).

Research Experience & Fields of Special Interest

My main research interests and experiences are in the control of robotic systems, especially: uncrewed vehicle dynamics and control; field robotics; human–robot interaction; and the design and experimental testing of uncrewed vehicle platforms.

Selected Research Achievements

1. Editor-in-Chief (EiC), IEEE Journal of Oceanic Engineering (2024 –)
2. Editor-in-Chief (EiC)-*Elect*, IEEE Journal of Oceanic Engineering (2023) 1-year transition period as EiC-Elect.
3. Member Executive and Administrative Committees IEEE Oceanic Engineering Society (2023 – present).
4. Associate Editor, IEEE Journal of Oceanic Engineering (2014–2022).
5. Member Scientific Advisory Committee of the Bozen-Bolzano Soccorso Alpino (Alpine Rescue) for evaluating use of drones in mountain rescue (2022 – present).
6. Member of the Collegio dei Docenti, Italian National Doctoral Program (Ph.D.) in AUtonomous SYstems (DAUSY), (2022 – present).

7. Invited tutorial session: "Fundamentals of Marine Vehicle Control", 2022 MTS/IEEE Oceans Conference, 21 February 2022, Chennai, India.

8. August 2024 Best Application Paper Award — Finalist, IEEE Robotics and Automation Society, "Chattering-free sliding mode control for position and attitude tracking of a quadrotor with a cable-suspended load," IEEE International Conference on Automation Science and Engineering - CASE 2024

9. August 2018 Best Paper Award, "Wave-aware trajectory planning for unmanned surface vehicles operating in congested environments," IEEE Safety, Security and Rescue Robotics Conference

10. 2015–2016 FAU University Researcher of the Year — Professor Level, Florida Atlantic University (2016)

Research Grant Record

Externally Sponsored Research at the Libera Università di Bolzano, Italy

1. von Ellenrieder, K. D. Camurri, M. Tomelleri, E. Mejia, A. and Moroder, M. "Forest Robotic Monitoring and Automation", 942K€, European Regional Development Fund, (2025-2027).

2. von Ellenrieder, K. D. "Program for Integrated Remote and Autonomous Mission Drive (PIRAMIDE)", 500K€, Iveco Defense Vehicles SpA., (2025-2026).

3. von Ellenrieder, K. D. and Ristorto, G. Egger, G. "Real-time adaptive mission planning for infrastructure inspection", 530K€, European Regional Development Fund, (2024-2026).

4. von Ellenrieder, K. D. "Machine Learning and Artificial Intelligence methods applied to robotics for key alpine applications", 88K€, Eurac Research Center, (2024-2027).

5. von Ellenrieder, K. D. "Shared human-robot control of heavy-lift aerial cargo drones", 75K€, Italian Ministry of Universities & Research (MUR) & PNRR DM630 Program, (2024-2027).

6. von Ellenrieder, K. D. "Control and trajectory planning for firefighting drones", 75K€, Italian Ministry of Universities & Research (MUR) & PNRR DM629 Program, (2024-2027).

7. von Ellenrieder, K. D. Vidoni, R. Rauch, E. and Petti, L. "Physical cognition for intelligent control and safe human-robot interaction" 273K€, Horizon Europe Digital Emerging Technologies, (2023-2025).

8. von Ellenrieder, K. D. "Risk-aware control of aerial cargo drones", 75K€, Italian Ministry of Universities & Research (MUR) & PNRR DM118 Program, (2023-2026).

9. von Ellenrieder "Automatic control and trajectory planning for UAVs", 50K€, Sparkasse Fusion Grant, (2023-2024).

10. von Ellenrieder, K. D. "Development of advanced control strategies for off-road autonomous vehicles with two front axles", 75K€, Italian Ministry of Universities & Research (MUR) & Iveco Group DM352 Program, (2022-2025).

11. Vidoni, R. and von Ellenrieder, K. D. "Modular and reconfigurable collaborative robots for precision agriculture", 75K€, Italian Ministry of Universities & Research (MUR) DM351 Program, (2022-2025).

12. von Ellenrieder, K. D. Vidoni, R. and Giusti, A. "Reconfigurable Collaborative Agri-Robots (Recoaro)", 238K€, Alto-Adige 2019, (2020-2022).

13. Vidoni, R. and von Ellenrieder, K. D. "Field Robotics South-Tyrol Laboratory (FiRST Lab)" 339K€, European Regional Development Fund (ERDF 2014-2020), (2018-2020).

14. Baratieri, M. and von Ellenrieder, K. D. "European Network of Cooperative and Work Integrated Higher Education" 32K€, Erasmus+ KA 2-3, (2014-2017).

Internally Sponsored Research at the Libera Università di Bolzano, Italy

1. von Ellenrieder, K. D. and Camurri, M. "Ground truth for spatial AI and digital twins" 83K€, Libera Università di Bolzano, (2024).

2. Vidoni, R. and von Ellenrieder, K. D. "Smart PRUning and Climbing treEs ROBOT" 100K€, Libera Università di Bolzano, (2019-2022).

3. Belotti, R. and von Ellenrieder, K. D. "Unmanned Ground Vehicle Stabilization for Rugged Terrain" 15K€, Libera Università di Bolzano, (2018-2019).

4. von Ellenrieder, K. D. "Development of a Modular Autopilot to Support Field Robotics Research" 75K€, Libera Università di Bolzano, (2017-2020).

Externally Funded Grants at Florida Atlantic University

1. von Ellenrieder, K. D. "NRI: Collaborative Research: Enabling Risk-Aware Decision Making in Human-Guided Unmanned Surface Vehicle Teams" $USD 450K National Science Foundation (2015-2020).

2. von Ellenrieder, K. D. "Unmanned Surface Vessel (USV) systems for bridge inspection" $USD 180K Florida Department of Transportation (2015-2016).

3. Dhanak, M. D., Venezia, W. von Ellenrieder, K. D. and Beaujean, P.-P. "Electromagnetic Observatory in the Straits of Florida: Oceanographic Perspective" $USD 800K Office of Naval Research (2015-2016).

4. von Ellenrieder, K. D. and Nataraj, C. "STEM student development through participation at the 2014 Maritime RobotX Challenge" $USD 25K Office of Naval Research (2014).

5. von Ellenrieder, K. D. and Dhanak, M. "Experimental Evaluation of Automatically Generated Behaviors for Autonomous USV Operations" $USD 200K Office of Naval Research (2012-2014).

6. von Ellenrieder, K. D. "Systems identification and control of an autonomous amphibious vehicle" $USD 200K Office of Naval Research (2011-2013).

7. Dhanak, M. von Ellenrieder, K. D. Ananthakrishnan, P. Su, T.-C. and An, E. "Naval Engineering Education Consortium (NEEC)" with University of Michigan and others $USD 1,446,469 Naval Sea Systems Command (2010- 2015).

8. Dhanak, M., von Ellenrieder, K. and An, A. "Precision ASV-AUV Cooperative Autonomy Using an Advanced-Hull ASV Including Automated Launch and Recovery (ACCESS)" $USD 913K Office of Naval Research (2010-2014)

9. Kajiura, S. von Ellenrieder, K. D. and Korey, S. "Assessment of shark attraction to underwater towed arrays" $USD 80K Petroleum Geo-Services (2010)

10. von Ellenrieder, K.D. ONR-ASEE Summer Faculty Fellowship "Design of submerged structures for wave focusing" $USD 16K (2010)

11. Dhanak, M. von Ellenrieder, K. D. An, E. Frisk, G. Venezia, W. Soloviev, A. Dodge, R. "Characterization of the impact of oceanographic features on the electromagnetic fields in coastal waters" $USD 2M Office of Naval Research (2010-2013).

12. von Ellenrieder, K. D. "Experimental testing of a SES (surface effect ship) waterjet propulsion system" $USD 299K Office of Naval Research (2010-2014).

13. Dhanak, M., Ananthakrishnan, P., An, P. vonEllenrieder, K. "Design of Energy-Efficient Autonomous Support Ships (WAM-V)" $USD 750K Office of Naval Research (2009-2012)

14. An, E. Beaujean, P. and von Ellenrieder, K. D. "MRI: Acquisition of Two REMUS Autonomous Underwater Vehicles for Multiple Cooperative Marine Vehicle Research" National Science Foundation $USD 701K (2009-2012)

15. von Ellenrieder, K. D. "Open water testing of a surface piercing propeller (SPP)" $USD 233K Office of Naval Research (2007-2010).

16. von Ellenrieder, K. D. "Experimental study of synchronization and phase dynamics in flapping wing propulsion" $USD 58.5K Air Force Office of Scientific Research (2007-2008).

17. Motta, P. Martin, A. Hueter, R. Kajiura, S and von Ellenrieder, K. D. "Collaborative Research: The function and evolution of the hammerhead shark cephalofoil" $USD 30K National Science Foundation (2007-2009).

18. Driscoll, F.R. von Ellenrieder, K. D. and Dhanak, M. "Optimization of the horizontal transit mode and vertical operations mode of a rapidly-deployable stable platform" $USD 150K Office of Naval Research (2007-2008).

19. von Ellenrieder, K. D. "Hydrodynamic design and integration of an UUV hull form and control surfaces" Part of the Center for Coastline Security Technology Project. $USD 180K U.S. Office of Naval Research (2005-2008).

20. Driscoll, F. von Ellenrieder, K. D. and Granata, R. "A proposal to implement a Research Experience for Undergraduates Site in Ocean Engineering at FAU" $USD 230K National Science Foundation (2004-2008).

Internally Funded Grants at Florida Atlantic University

1. von Ellenrieder, K. D. "Pilot Study: A wind and solar powered autonomous surface vehicle for oceanographic measurements" $USD 10K New Project Development Award, Florida Atlantic University Division of Sponsored Research (2007-2008).

Published Works

The full list of my publications and associated statistics can be accessed at the following links.
Scopus: https://www.scopus.com/authid/detail.uri?authorId=6603009594
All Publications: https://scholar.google.it/citations?hl=en&user=molIGE0AAAAJ

I have written a textbook entitled *Control of Marine Vehicles* (ISBN 978-3-030-75020-6), which can be accessed here https://www.springer.com/gp/book/9783030750206.

Publications Last 5 Years

S. Bhaskar Varma Balagopala and Karl D. von Ellenrieder. Multi-robot obstacle avoidance in dynamic environments using opinion-driven CBFs. In *2025 European Control Conference (ECC)*, pages 320–325, 2025. URL https://doi.org/10.23919/ECC65951.2025.11187063.

Cheikh Melainine El Bou, Karl D. von Ellenrieder, and Satyandra K. Gupta. A homogeneity-based path following shared control system for UGVs. In *2022 30th Mediterranean Conference on Control and Automation (MED)*, pages 725–730, 2022. URL https://doi.org/10.1109/MED54222.2022.9837268.

Cheikh Melainine El Bou, Florian Beck, Karl D. von Ellenrieder, and Satyandra K. Gupta. Shared control with obstacle avoidance for UGVs. *IEEE Transactions on Automation Science and Engineering*, 22:17109–17126, 2025a. URL https://doi.org/10.1109/TASE.2025.3582522.

Cheikh Melainine El Bou, Michele Focchi, Michael R. Chang, Marco Camurri, and Karl D. von Ellenrieder. Smooth human–robot shared control for autonomous orchard monitoring with UGVs. *IEEE Transactions on Automation Science and Engineering*, 22:13603–13620, 2025b. URL https://doi.org/10.1109/TASE.2025.3554368.

Ivan Enzo Gargano, Karl Dietrich von Ellenrieder, and Marianna Vivolo. A survey of trajectory planning algorithms for off-road uncrewed ground vehicles. In Jan Mazal, Adriano Fagiolini, Petr Vasik, Francesco Pacillo, Agostino Bruzzone, Stefan Pickl, and Petr Stodola, editors, *Modelling and Simulation for Autonomous Systems*, pages 120–148, Cham, 2025. Springer Nature Switzerland. ISBN 978-3-031-71397-2. URL https://link.springer.com/chapter/10.1007/978-3-031-71397-2_8.

Sara Gomiero and Karl von Ellenrieder. Chattering-free sliding mode control for position and attitude tracking of a quadrotor. In *2024 10th International Conference on Control, Decision and Information Technologies (CoDIT)*, pages 348–353, 2024. URL https://doi.org/10.1109/CoDIT62066.2024.10708146.

Sara Gomiero and Karl Von Ellenrieder. Chattering-free sliding mode control for position and attitude tracking of a quadrotor with a cable-suspended load. In *2024 IEEE 20th International Conference on Automation Science and Engineering (CASE)*, pages 2031–2038, 2024. URL https://doi.org/10.1109/CASE59546.2024.10711727.

Sara Gomiero and Karl Von Ellenrieder. Modified super-twisting sliding mode control for trajectory tracking of a cargo quadrotor. In *2025 IEEE 21st International Conference on Automation Science and Engineering (CASE)*, pages 2116–2123, 2025a. URL https://doi.org/10.1109/CASE58245.2025.11164044.

Sara Gomiero and Karl D. Von Ellenrieder. Localization of AUVs using higher order sliding mode observer and extended Kalman filter. In *2025 IEEE Underwater Technology (UT)*, pages 1–5, 2025b. URL https://doi.org/10.1109/UT61067.2025.10947421.

Sara Gomiero and Karl D. Von Ellenrieder. Modeling and sliding mode control of a heavy-lift quadrotor with a cable-suspended payload under wind disturbances. *IEEE Transactions on Automation Science and Engineering*, 2025c. URL https://doi.org/10.1109/TASE.2025.3612189.

HC Henninger, KD von Ellenrieder, and SC Licht. Energy-minimal target retrieval for quadrotor UAVs: trajectory generation and tracking. In *2020 28th Mediterranean Conference on Control and Automation (MED)*, pages 727–732. IEEE, 2020. URL http://dx.doi.org/10.1109/med48518.2020.9182898.

Helen Henninger and Karl von Ellenrieder. Generating maneuverable trajectories for a reconfigurable underactuated agricultural robot. In *2021 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)*, pages 436–441. IEEE, 2021. URL https://doi.org/10.1109/MetroAgriFor52389.2021.9628752.

Helen Henninger, James Biggs, and Karl von Ellenrieder. Safety-aware optimal attitude pointing for low-thrust satellites. *Applied Sciences*, 11(7):3002, 2021. URL http://dx.doi.org/10.3390/app11073002.

Parvin Mahmoudabadi, Karl D. von Ellenrieder, Matthias Moroder, and Moritz Moroder. Safety-critical control for a coaxial octorotor uav via high order control barrier function. In *2024 10th International Conference on Control, Decision and Information Technologies (CoDIT)*, pages 336–341, 2024. URL https://doi.org/10.1109/CoDIT62066.2024.10708561.

Pradeep Rajendran, Travis Moscicki, Jared Wampler, Karl von Ellenrieder, and Satyandra K Gupta. Trajectory planning for unmanned surface vehicles operating under wave-induced motion uncertainty in dynamic environments. *International J. Advanced Robotic Systems*, 17(6), 2020. URL http://dx.doi.org/10.1177/1729881420958948.

RA Saeed, Giacomo Tomasi, Ganesh Govindarajan, Renato Vidoni, and Karl D Von Ellenrieder. Metrology-aware path planning for agricultural mobile robots in dynamic environments. In *2021 IEEE International Workshop on Metrology for Agriculture and Forestry (MetroAgriFor)*, pages 448–453. IEEE, 2021. URL https://doi.org/10.1109/MetroAgriFor52389.2021.9628737.

Raza A. Saeed, Giacomo Tomasi, Giovanni Carabin, Renato Vidoni, and Karl D. von Ellenrieder. Conceptualization and implementation of a reconfigurable unmanned ground vehicle for emulated agricultural tasks. *Machines*, 10(9), 2022. ISSN 2075-1702. URL https://doi.org/10.3390/machines10090817.

Raza A. Saeed, Giovanni Carabin, Renato Vidoni, and Karl D. von Ellenrieder. Numerical and experimental evaluation of an enhanced boundary node path-planning method for agri-robots in dynamic environments. In *2023 ASME International Mechanical Engineering Congress & Exposition*, pages 1–6, 2023.

Karl D. von Ellenrieder. *Control of Marine Vehicles*. Springer, 2021a. URL https://www.springer.com/gp/book/9783030750206.

Karl D von Ellenrieder. Trajectory tracking SISO marine sampling systems with input and state delays. *IFAC-PapersOnLine*, 54(16):281–287, 2021b. URL https://doi.org/10.1016/j.ifacol.2021.10.105.

Karl D von Ellenrieder. Control barrier function based collision avoidance control for underactuated USVs. In *Global Oceans 2022: Chennai, India*, pages 1–8. IEEE, 2022. URL https://doi.org/10.1109/OCEANSChennai45887.2022.9775402.

Karl D. von Ellenrieder. Dynamic modeling and control of an amphibious uncrewed surface vessel. In *OCEANS 2023 - Limerick*, pages 1–5, 2023. URL https://doi.org/10.1109/OCEANSLimerick52467.2023.10244634.

Karl D. von Ellenrieder and Marco Camurri. Relaxed control barrier function based control for closest approach by underactuated USVs. *IEEE Journal of Oceanic Engineering*, 49(4): 1301–1321, 2024. URL https://doi.org/10.1109/JOE.2024.3423869.

Karl D von Ellenrieder, Helen C Henninger, and Stephen Licht. Dynamic modelling and control of a portable USV for bathymetric survey. In *Global Oceans 2020: Singapore–US Gulf Coast*, pages 1–7. IEEE, 2020. URL https://doi.org/10.1109/IEEECONF38699.2020.9389412.

Karl D. von Ellenrieder, Stephen C. Licht, Roberto Belotti, and Helen C. Henninger. Shared human–robot path following control of an unmanned ground vehicle. *Mechatronics*, 83: 102750, 2022. ISSN 0957-4158. doi: https://doi.org/10.1016/j.mechatronics.2022.102750. URL https://www.sciencedirect.com/science/article/pii/S0957415822000083.

Teaching Experience

I have developed and taught courses across a broad range of engineering disciplines, including automatic control, robotics, hydrodynamics, systems engineering and design. A large fraction of these courses have been project-based and included a mix of theory, simulation and physical realization in both the lab and in the field. Some of the lecture notes and problems developed for these courses are published as a book on the control of marine vehicles (https://www.springer.com/gp/book/9783030750206) and as a book chapter on hydromechanics in the Springer Handbook of Ocean Engineering (https://link.springer.com/chapter/10.1007/978-3-319-16649-0_7).

Courses Taught

The following abbreviations are used below to indicate when courses were taught:
Sem. 1 = Autumn Semester
Sem. 2 = Spring Semester
Sem. 3 = Summer Semester

Courses taught at the Libera Università di Bolzano (UniBZ)

1. 47568 Mobile Robotics (M.S./Ph.D. Level, Sem. 2 2019–2024)
2. 47511 Automatic Control (M.S. Level Sem. 2 2017, Sem. 1 2017–2025)
3. 42411 Fundamentals of Dynamic Systems and Control (B.S. Level, Sem. 1 2023, 2025)
4. 42174 Fundamentals of Information Science and Microcontroller Programming (B.S. Level, Sem. 1 2016–2020, 2022)

Courses taught in the Italian National Ph.D. Program in Autonomous Systems, Politecnico di Bari (PoliBa)

1. Control of Marine Vehicles (Ph.D. Level, Sem. 2 2024)
2. Nonlinear Control (Ph.D. Level, Sem. 2 2025)

Courses taught at Florida Atlantic University (FAU)

1. EGN 3321 Dynamics (B.S. Level, Sem. 2 2015)
2. EOC 3130 Ocean Engineering Laboratory (B.S. Level, Sem. 2 2005–2007, 2016)
3. EOC 4422 Ocean Wave Mechanics (B.S. Level, Sem. 1 2014, 2015)
4. EOC 4804 Ocean Engineering Systems Control & Design (B.S. Level, Sem. 1 & Sem. 2 2007–2014)
5. EOC 4930 Ocean Engineering Research Experience (B.S. Level, Sem. 3 2005, 2007)
6. EOC 5172 Mathematical Methods in Ocean Engineering I (M.S./Ph.D. Level, Sem. 1 2005–2007)
7. EOC 6185 Advanced Hydrodynamics I (M.S./Ph.D. Level, Sem. 1 2003–2015)
8. EOC 6515 Hydrodynamic Aspects of Ship Design (M.S./Ph.D. Level, Sem. 2 2015, 2016)
9. EOC 6934[1] Autonomous Maritime Systems Control (M.S./Ph.D. Level, Sem. 2 2012)
10. EOC 6934[1] Applied Ocean Engineering (M.S./Ph.D. Level, Sem. 3 2012)
11. EOC 6934[1] Elements of High Speed Marine Vehicle Design (M.S./Ph.D. Level, Sem. 2 2008, 2011)

[1]The designation EOC6934 is given to all postgraduate–level courses in the FAU Ocean Engineering Program that are either taught as a special topics course, or that have been proposed and are still under consideration for inclusion as a regular course.

Thesis Supervision

Ph.D. Thesis in Progress at UniBZ (Advisor):

1. Gargano, Ivan Enzo (anticipated 2025) Development of advanced control strategies for off-road autonomous vehicles with two front axles.
2. Gomiero, S. (anticipated January 2026) Risk-aware control of aerial cargo drones.
3. Balagopala, S. R. (anticipated January 2026) Plantooning control of uncrewed vehicles.
4. Esparza, J. (anticipated January 2027) Machine Learning and Artificial Intelligence methods applied to robotics for key alpine applications.

Completed Ph.D. Thesis at UniBZ (Advisor):

1. El Bou, M. C. (July 2024) Stability of shared control in human robot interaction.

Completed Ph.D. Thesis at UniBZ (co-Advisor):

1. Faisal, F. M. (April 2022) Modelling and Optimization of High Efficiency Bidirectional DC-DC Converter interfacing to High-voltage Battery storage Systems.

Completed Ph.D. Theses at FAU (Advisor):

1. Moscicki, T. (2021) Trajectory planning with dynamics-aware parabolic blends.
2. Bertaska, I. R. (2016) Supervisory switching control of USV systems.
3. Qu, H. (2016) Adaptive, feed-forward control of a USV.
4. Duerr, P. (2014) Numerical characterization of waterjet performance.
5. Finkel, C. L. (2013) Synchronization and phase dynamics of oscillating foils.

Completed Ph.D. Theses at FAU (Co-Advisor):

1. Li, Bo (2016) Dynamics and control of autonomous underwater vehicles with internal actuators.

Completed M.S. Theses at UniBZ (Advisor):

1. Santimaria, M. (2023) Super-twisting control of a quadrotor UAV.
2. Della Vecchia, F. (2020) Preliminary design of an unmanned surface vessel for surveying shallow inland waters.
3. Ballardini, S. (2020) Application of sliding mode control to a small unmanned aerial vehicle for trajectory tracking.

4. Albrecht, T. (2019) Systematic concept development of a robot gripper for the handling of sintered ceramic components in the material feed of an automatic surface inspection.

5. Dirr, J. M. (2019) Collision detection for cable driven parallel robots with uncertain dynamics.

Completed M.S. Theses at FAU (Advisor):

1. Dill, T. (2014) Modeling the performance of a laser for tracking an underwater dynamic target.

2. Klinger, W. (2014) Adaptive controller design for an autonomous twin-hulled surface vessel with uncertain displacement and drag.

3. Grimes, J. (2013) Design and implementation of a measurement system for direct thrust measurements of a waterjet propelled surface vehicle.

4. Alvarez, Jose (2013) Nonlinear control of an unmanned amphibious vehicle.

5. Valentine, William M. (2012) Design of hydrodynamic test facility and scaling procedure for ocean current renewable energy devices.

6. Marquardt, J. G. (2012) Development and experimental testing of an amphibious vehicle.

7. Furfaro, Thomas C. (2012) A modular guidance, navigation and control system for unmanned surface vehicles.

8. Miller, Lea G. (2011) Simulating the dynamic interaction of an AUV and towed magnetometer.

9. Altamirano, L. (2010) Flow visualization of the ventilated cavities generated by a surface piercing propeller.

10. Lorio, Justin M. (2010) Open water testing of a surface-piercing propeller with varying submergence, yaw angle and inclination angle.

11. Barousse, Julien (2009) Hydrodynamic functions of the wing-shaped heads of hammerhead sharks.

12. Rynne, Patrick F. (2008) Design and performance of a wind and solar-powered autonomous surface vehicle.

13. Ackermann, Lloyd E. J. (2007) Thrust response of a vectored-thruster unmanned underwater vehicle.

14. Buzard, Alan J. (2005) Experimental study of the wake-modes for propulsion of two-dimensional heaving airfoils.

Completed M.S. Theses at FAU (Co-Advisor):

1. Egeland, M. (2014) Use of a towed acoustic Doppler velocimeter for ocean turbulence measurements.

2. Lovenbury, James W. (2013) Evaluation and testing of an Acoustic Doppler Velocimeter for turbulence measurements in an open ocean environment.

3. Young, Matt T. (2012) Design and analysis of an ocean current turbine performance assessment system.

4. Seibert, Michael G. (2011) Determining anchoring systems for marine renewable energy devices moored in a western boundary current.

Completed B.S. Theses at UniBZ (Advisor):

1. Freitag, K. (2021) Development of an automatic person-following system for an unmanned ground vehicle.

Technical Society Teaching Activities

1. Higher order sliding mode control for mobile robots. IFToMM ROBOzen: International winter school on mechanism design and motion planning for robotics. 3 January, 2020. Bolzano, Italy.

2. Fundamentals of marine vehicle control. Invited tutorial session 2022 MTS/IEEE Global Oceans Conference. 21 February, 2022. Chennai, India.

Short Courses for Industry

1. Introduction to ROS, Iveco Defense Vehicles, Bolzano. 20-hour short course, October 2022.

Extracurricular Student Advising Activities

Faculty Advisor:	FAU Society of Naval Architects and Marine Engineers/Marine Technology Society Student Club (2011-2016)
Faculty Advisor:	FAU-Villanova University RobotX Maritime Challenge Team (2013-2016) One of three teams selected to represent the United States in an international unmanned surface vehicle (robotic boat) student competition held in Singapore in October 2014.
Faculty Advisor:	FAU AUVSI Roboboat Autonomous Surface Vehicle Student Team (2008-2016). Team placed 2nd in 2015 and in 2008. The "Chameleon-Eye Navigation System" developed for the 2009 competition was presented in a paper at the MTS/IEEE Oceans Conference in 2009; an extended version of the conference paper was also published in the Marine Technology Society Journal.
Faculty Advisor:	FAU SCUBA Club (2012-2013).
Faculty Advisor:	FAU Ocean Renewable Energy Generation Team, Megawatt Ventures Start-up Competition (2012).

Experience in Academic Planning and Governance

Nationally - within Italy

- Member of the Collegio dei Docenti of the Doctoral Program of National Interest in Autonomous Systems based at the Politecnico di Bari (2022–present) — student recruitment (member selection commission 38th Cycle), evaluation of research projects, curriculum development, etc.

Libera Università di Bolzano

Faculty of Engineering:

- Consiglio di Corso di Studi (Faculty Council Member) of M.S. in Industrial & Mechanical Engineering (LM-33) Program (2016–present) — generally provide feedback to program administrator concerning curriculum, recruitment and other student issues. With two other faculty members developed the format and templates currently in use for the M.S. thesis.

University Level:

- Coordinator, Ph.D. Program in Advanced-Systems Engineering (2020-2024) (https://www.unibz.it/en/faculties/engineering/phd-advanced-systems-e

ngineering/). While the Ph.D. Programs at UniBZ have a *home* within specific faculty/college, each Ph.D. program is multidisciplinary, so that its Program Coordinator officially reports to the University Rector, rather than the Dean of the faculty which *houses* the program. The Advanced-Systems Engineering Ph.D. Program consists of faculty from the areas of Mechanical & Industrial Engineering, Electrical Engineering, Physics of Materials, Automation, Applied Mathematics and Computer Science. The program started on 1 November 2019, as Coordinator I was responsible for overseeing the initial development of the program curriculum, the organization/structure of the program (e.g. participating faculty and research areas covered), the reporting required by students and supervisors, and the development of the thesis format/requirements. In general, the responsibilities of the Coordinator include: organizing the curriculum, monitoring the progress of PhD students, solving student issues, overseeing the recruitment and selection of students, planning and overseeing faculty meetings, overseeing the use of program funding, and overseeing the program's accreditation/certification (in Italy the Ministry of Instruction, Universities and Research reviews and certifies all Ph.D. programs annually, to ensure that the available facilities, curriculum and participating faculty are sufficient; all Ph.D. programs undergo a more stringent accreditation process every three years).

- Member of the Advisory Board, BiTZ UniBZ Fablab Maker Space (2016-2023) — With other board members, helped to oversee the management, budget, personnel and policies of the Fablab, including student membership, community membership, fundraising, as well as its interaction with the local community and other maker spaces. Was responsible for selecting the electrical components, electronics fabrication equipment and test/measurement instrumentation when the lab first opened, as well as providing guidance about the configuration of the electronic workstations.

Florida Atlantic University

Departmental Level:

- Associate Director, SeaTech Institute for Ocean Systems Engineering (2014-2016) — The Ocean Engineering Program at FAU is located on two campuses. The first three years of the undergraduate program are conducted on the main campus of FAU in Boca Raton. The final year, as well as all of the postgraduate-level courses, are conducted at the FAU SeaTech Campus, which is a research-focused campus. As Associate Director, I was responsible for overseeing the mechanical technicians and personnel in the machine shop, safety & emergency preparedness (the campus is located on a long, narrow island about 250 meters wide and the area is prone to hurricanes and susceptible to flooding), and assisted the Director with management of the facility, e.g. seeking funding for the institute, working with local government, personnel issues (hiring, performance

evaluations, conflict resolution, etc.), as well as helping to track issues related to the infrastructure of the institute.

- Ocean Engineering ABET Committee (2009-2010) — helped to organise documentation and establish procedures in preparation for a five-year review of the Ocean Engineering Program by the U.S. Accreditation Board for Engineering & Technology.
- Ocean & Mechanical Engineering Chairperson Search Committee (2009-2010) — Starting in 2010 the Ocean Engineering Department and Mechanical Engineering Department were merged to form a single department. The search committee was tasked with finding an external candidate to serve as Chairperson.
- Ocean Engineering Computing Committee (2003-2008) — Worked with colleagues to ensure that the computational and distance learning infrastructure of the department was sufficient to support the needs of the faculty and students.
- Ocean Engineering Faculty Secretary (2003-2008)
- Ocean Engineering Graduate (Postgraduate) Curriculum Committee (2003-2005)
- Ocean & Mechanical Engineering Graduate (Postgraduate) Curriculum Committee (2011-2012)
- Ocean Engineering Recruitment Committee (2005-2009) — Worked with colleagues and staff to develop strategies for attracting strong students to the program via advertising, the development of focused introductory courses, and incentive programs, such as departmental scholarships.
- Ocean Engineering Research Committee (2006-2009) — Worked with colleagues to ensure that the research infrastructure of the department was satisfactory, as well as to organize seminars and lectures by visiting faculty and researchers.
- Ocean Engineering Undergraduate Curriculum Committee (2008-2010)
- Ocean & Mechanical Engineering Undergraduate Curriculum Committee (2010-2011)

Faculty/College Level:

- FAU College of Engineering & Computer Science, Policy & Development Committee (2010-2015), Committee Chairperson (2013-2015). During my tenure as Chairperson, the committee developed new bylaws for the College of Engineering and Computer Science and worked with faculty and the Dean's office to see them approved by a College-wide vote. I was also responsible for organizing College-wide elections for the Faculty President and for working with the Dean's office to develop the College Strategic Plan.

- Dept. Civil Engineering and Geomatics Engineering Interim Chairperson Search Committee (2013) — served as the extradepartmental member of the committee.

University Level:

FAU/Harbor Branch Oceanographic Institute (HBOI) Partnership Task Force (2010) — In 2007, HBOI was merged with Florida Atlantic University. Previously, it was a separate, privately-funded, oceanographic research institute. Together with colleagues from both HBOI and FAU, I worked to develop strategies for strengthening the collaboration between the researchers/scientists at HBOI and the faculty at FAU by identifying potential research synergies and exploring how the infrastructure of the two formerly separate institutions could be leveraged to bolster the activities at both of them.

Other Relevant Experience

Program Management

- Program Manager, Link Foundation Ph.D. Fellowships (scholarships) in Ocean Engineering & Instrumentation Program https://www.linkoe.org/ (2011–2016) — the program provides 1 year scholarships to doctoral students at any university in the U.S. or Canada studying in the field of Ocean Engineering & Instrumentation. I was responsible for the organization of the fellowship program on behalf of the Link Foundation, including: advertising, soliciting applications, processing applications, answering program-related questions, assembling an application review panel, reviewing applications, monitoring the progress of fellows, and managing the program's budget. From 2012–2013, I oversaw the development of a completely, on-line, web-based application website, which I was asked to extend to the other two Link Foundation Ph.D. Fellowship Programs (Modeling, Simulation & Training and Energy) in 2014.

- Special Adviser to the Board of Trustees, Link Foundation https://www.binghamton.edu/link-foundation/ (2014–2016) — The Link Foundation provides scholarships to doctoral students in the U.S. and Canada pursuing research in three areas: 1) Ocean Engineering & Instrumentation, 2) Modeling, Simulation and Training Fellowship Program, and 3) Energy. It also supports various research projects at the Harbor Branch Oceanographic Institute (https://www.fau.edu/hboi/). As a Special Adviser to the board, I was responsible for providing input on trends in ocean engineering research and postgraduate-level studies.

Industry/Consulting

- Marine Systems Engineering LLC, Fort Lauderdale, FL (2012–2016) — Started a small company to perform research and consulting in the field of ocean engineering. Received two multi-year contracts from the U.S. Geological Survey to develop techniques for predicting the drifting trajectories of an endangered species of waterbird (Common Loon) killed by contaminants released in the Great Lakes region of the U.S., along the shores of Wisconsin and Michigan. Also developed a special-purpose GPS/Inertial Measurement Unit tracking sensor, which was used to collect data for experimental validation of waterbird drift simulation models.