

CURRICULUM VITAE

Professor Kristin Y. Pettersen

Born: 1969-01-28, Fana, Norway

Nationality: Norwegian

Marital status: Married. Two children.

Present position: Professor, Department of Engineering Cybernetics, NTNU
Adjunct Professor, Norwegian Defence Research Establishment (FFI)
Norwegian University of Science and Technology
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Academic degrees:

1996 PhD Engineering Cybernetics, Norwegian University of Science and Technology (NTNU)
1991 MSc Engineering Cybernetics, Norwegian Institute of Technology (NTH)

Work experience:

2015-2016	CEO and co-founder	Eelume AS
2014-	Adjunct Professor	Norwegian Defence Research Establishment (FFI)
2013-2022	Key scientist	CoE Autonomous Marine Operations and Systems (NTNU AMOS)
2011-2013	Head of Department	Dept. Engineering Cybernetics, NTNU
2009-2011	Vice-head of Department	Dept. Engineering Cybernetics, NTNU
2010-2013	Director	NTNU Strategic Area ICT Programme of Robotics
2008	Guest Professor	Section for Automation and Control, Aalborg University
2002-	Professor	Dept. Engineering Cybernetics, NTNU
2001-2013	Scientific Advisor	SINTEF ICT
1999	Visiting Fellow	Dept. Mech. and Aerospace Eng., Princeton University
1997-2002	Associate Professor	Dept. Engineering Cybernetics, NTNU
1996-1997	Assistant Professor	Dept. Engineering Cybernetics, NTNU
1993-1996	Research scholar	Dept. Engineering Cybernetics, NTNU/ Norwegian Research Council
1992	Teaching assistant	Dept. Engineering Cybernetics, NTNU

Board/Council work:

2017-2020	Member	IFAC Council
2017-2020	Vice-chair	IFAC Administrative & Finance Committee
2016-	Board member	Eelume AS
2012-2014	Board member	IEEE Control Systems Society - Board of Governors
2011-2013	Vice-chair	Norwegian Defence Research Establishment (FFI)

2011-2013	Deputy board member	Norwegian Smartgrid Centre
2010-2013	Deputy council member	SINTEF
2010-2017	Board member	NTNU Applied Underwater Robotics Laboratory
2007-2011	Board member	Norwegian Defence Research Establishment (FFI)
2008-	Council member	SINTEF Information and Communication Technology
2007-2011	Board member	NTNU/SINTEF Gemini centre of Advanced Robotics
2005-2009	Chair	KEE Control Systems Technology AS (KEEtech)
2005-2009	Council member	Faculty of Information Tech., Math. and Electrical Eng., NTNU
2005-2009	Council member	Dept. Engineering Cybernetics, NTNU
2004-2007	Board member	SINTEF Information and Communication Technology
1999-2005	Board member	Dept. Engineering Cybernetics, NTNU
2002-2005	Board member	Faculty of Information Tech., Math. And Electrical Eng., NTNU

Selected Research Projects:

2013-2022	Key scientist	<p>Project title: Autonomous Marine Operations and Systems (NTNU AMOS).</p> <p>Centre of Excellence funded by the Norwegian Research Council. Project Manager for the project “Marine robotic platforms”, 2018 – 2022.</p> <p>Project Manager for Project 4: “Autonomous underwater robotics for mapping, monitoring and intervention”, 2013 – 2017.</p> <p>Coordinator for Area 3: Autonomous unmanned vehicles and operations (Projects 3,4,5), 2013 – 2017.</p> <p>Project partners: NTNU, SINTEF, Statoil, DNV.</p> <p>Total Budget 600 MNOK</p>
2011-2015	Project manager	<p>Project title: Snake Locomotion in Challenging Environments (SLICE) FRITEK project funded by the Norwegian Research Council</p> <p>Project partners: NTNU and SINTEF</p> <p>Budget: 13.9 MNOK</p>
2009-2014	Project manager	<p>Project title: Control, Information and Communication Systems for Environmental and Safety Critical Systems (CICS)</p> <p>SUP project funded by the Norwegian Research Council</p> <p>Budget: 15 MNOK</p>
2009-2014	Key scientist	<p>Project title: Next Generation Robotics for Norwegian Industry (NextGenRob)</p> <p>Project partners: SINTEF, NTNU, Statoil, Hydro, Tronrud Engineering, Glen Dimplex Nordic, SbSeating (HÅG) and RobotNorge</p> <p>Budget: 36 MNOK</p>
2006-2009	Project manager	<p>Project title: Underwater vehicles for synchronization of formations of advanced autonomous underwater vehicles and satellites (AUVSAT)</p> <p>NTNU AVIT project</p> <p>Budget: 1 MNOK</p>
2006-2010	NTNU Project leader	<p>FREE_{sub}NET: A European Research Training Network on Key Technologies for Intervention Underwater Autonomous Vehicles</p> <p>EU Marie Curie Research Training Network, FP6-2005-Mobility-1/RTN</p> <p>Budget NTNU: 2 MNOK</p>
2004-2009	Key scientist	<p>Computational Methods in Nonlinear Motion Control (CM-in-MC)</p> <p>SUP project funded by the Norwegian Research Council</p> <p>Budget: 25 MNOK</p>

Editorial work:

- 2015- Review Editor, [Robotic Control Systems](#), Frontiers in Robotics and AI.
- 2012- Section Editor of "Control of Marine Vessels", [Encyclopedia of Systems and Control](#), Eds. J. Baillieul and T. Samad, Springer-Verlag, London, 2015. ISBN 978-1-4471-5057-2.
- 2012-2015 Associate Editor [IEEE Control Systems Magazine](#).
- 2010-2015 Associate Editor [IEEE Transactions on Control Systems Technology](#).
- 2008-2009 Member of the Editorial Board [Simulation Modelling Practice and Theory](#).
- 2009-2011 Associate Editor IEEE International Conference on Robotics and Automation Shanghai, China, 2011, Anchorage, Alaska, 2010, and Kobe, Japan, 2009.
- 2009 Associate editor IEEE/RSJ International Conference on Intelligent Robots and Systems, St. Louis, USA, 2009.

IPC/Conference organization:

- 2019 Senior member of the International Program Committee of the *European Control Conference*, Naples.
- 2018 Member of the Program Committee of *IEEE Conference on Decision and Control*, Miami, Florida.
- 2018 Program chair of *2018 IEEE Conference on Control Technology and Applications (CCTA)*, Copenhagen, Denmark.
- 2015 IPC member *14th European Control Conference*, Linz, Austria.
- 2014 IPC member and Associate Editor *22nd Mediterranean Conference on Control & Automation*, Palermo, Italy.
- 2014 IPC member *13th European Control Conference*, Strasbourg, France.
- 2011 IPC member *50th IEEE Conference on Decision and Control and European Control Conference*, Orlando, Florida.
- 2010 IPC member *7th IFAC Symposium on Intelligent Autonomous Vehicles*, Lecce, Italy.
- 2010 IPC member *1st Virtual Control Conference*.
- 2009 IPC member *8th IFAC Conference on Manoeuvring and Control of Marine Craft*, Guarujá, Brazil.
- 2006 IPC member *7th IFAC International Conference on Manoeuvring and Control of Marine Craft*, Lisbon.

Awards/Appointments:

- 2018 Member of the Academy of the Royal Norwegian Society of Sciences and Letters - [DKNVS](#).
- 2017 [IEEE Transactions on Control Systems Technology Outstanding Paper Award](#), 2017 for the paper:
W. Caharija, K.Y. Pettersen, M. Bibuli, P. Calado, E. Zereik, J. Braga, J.T. Gravdahl, A.J. Sørensen, M. Milovanovic and G. Bruzzone, "Integral Line-of-Sight Guidance and Control of Underactuated Marine Vehicles: Theory, Simulations and Experiments", *IEEE Transactions on Control Systems Technology*, Vol. 24, No. 5, 2016, pp. 1623-1642.
- 2017 IEEE-ROBIO 2017 Best Conference Paper Award for the paper:
A.M. Kohl, S. Moe, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Set-based path following and obstacle avoidance for underwater snake robots", Proc. 2017 IEEE Int. Conf. on Robotics and Biomimetics, Macau, China, Dec. 5-8, 2017.
- 2017 Fellow of the IEEE.
- 2016 Eelume AS awarded ["Subsea Upcoming Company of the Year"](#), by GCE Subsea.

- 2013 Appointed member of the Norwegian Academy of Technological Sciences – [NTVA](#).
- 2006 [IEEE Transactions on Control Systems Technology Outstanding Paper Award](#), for the paper: K.Y. Pettersen, F. Mazenc and H. Nijmeijer, "Global Uniform Asymptotic Stabilization of an Underactuated Surface Vessel: Experimental Results", *IEEE Transactions on Control Systems Technology*, Vol. 12, No. 6, Nov. 2004.
- 2004 Senior member of the IEEE.
- 1993 Norwegian Research Council Personal Doctoral Research Fellowship.

Plenary lectures:

- 2017 Snake Robots: from Biology, through University, towards Industry. Plenary lecture at IFAC World Congress, Toulouse, France, July 9-14, 2017.
- 2016 Snake Robots – Swimming snake robots – a bio-inspired solution for subsea inspection and intervention. Plenary lecture at IEEE International Symposium on Safety, Security, and Rescue Robotics (SSRR), Lausanne, Switzerland, October 23-27, 2016.
- 2015 Snake Robots – A solution for firefighting, search and rescue, and subsea IMR operations. Distinguished Lectures Speaker at University of Toronto, Canada, October 22, 2015. <http://www.ece.utoronto.ca/about/distinguished-lectures/>
- 2014 Swimming manipulators – a bio-inspired underwater robotic solution. Plenary lecture at 10th IFAC Conference on Manoeuvring and Control of Marine Craft (MCMC), Copenhagen, Denmark, August 24-26, 2015.
- 2013 Snake Robots - From Biology to Nonlinear Control. Semi-Plenary lecture at IFAC Symposium on Nonlinear Control, Toulouse, France, September 4-6, 2013.

Membership in Academic and Professional Organizations and Committees:

- 2015- Member of [IFAC Technical Committee on Mechatronics](#)
- 2014 Member of [European Research Council Consolidator Grants Evaluation Panel](#) PE7, Systems and Communication Engineering
- 2014 Member of the Evaluation Committee of [the ARGOS challenge](#) Total / Agence Nationale de la Recherche (ANR)
- 2012- Member of the management team of NTNU IME Lighthouse Project [Robotics](#).
- 2011-16 Member [IEEE Robotics and Automation Society Technical Committee on Space Robotics](#).
- 2009-13 Member of the management team of NTNU Strategic Area ICT, [TSO ICT](#).
- 2009 - Member [IEEE Robotics and Automation Society Technical Committee on Marine Robotics](#).
- 2006-11 Member of [IFAC Technical Committee on Nonlinear Control System](#).

- 2003/04 Member of Norwegian Research Council Committee developing a Strategic Plan for Information and Communication Technology [Strategic plan](#).
- 1993- [IEEE: Institute of Electrical and Electronics Engineers](#) (Senior member since 2004)
- 1993- [Norwegian Society of Automation \(NFA\)](#), the Norwegian branch of the [International Federation of Automatic Control \(IFAC\)](#).
- 1992- Member of the [Norwegian Society of Chartered Engineers \(Tekna\)](#)

Awards students:

- 2014 Filippo Sanfilippo, awarded the *2014 IEEE International Conference on Information and Automation Best Student Paper Award* for the paper, "JOpenShowVar: an Open-Source

- Cross-Platform Communication Interface to Kuka Robots” by F. Sanfilippo, M. Fago, L.I. Hatledal, K.Y. Pettersen and H. Zhang.
- 2012 Walter Caharija, awarded the *2012 IFAC Conference on Manoeuvring and Control of Marine Craft Best Student Paper Award* for the paper “Relative Velocity Control and Integral LOS for Path Following of Underactuated Surface Vessels” by W. Caharija, M. Candeloro, K.Y. Pettersen and A.J. Sørensen.
- 2011 Pål Liljebäck, awarded the *2011 ExxonMobil prize for best doctoral dissertation at NTNU* for his thesis: [Modelling, Development, and Control of Snake Robots](#), NTNU thesis 2011:70.
- 2007 Øystein Engelhardtson, awarded *Best Master thesis 2007* by [Norwegian Society of Automation \(NFA\)](#), the Norwegian branch of the [International Federation of Automatic Control \(IFAC\)](#) for his Master thesis “3D AUV Collision Avoidance”.
- 2005 Even Børhaug, awarded *Best Master thesis 2005* by [Norwegian Society of Automation \(NFA\)](#), the Norwegian branch of the [International Federation of Automatic Control \(IFAC\)](#) for his Master thesis “Cross-track maneuvering and way-point control of underactuated AUVs in particular and mechanical systems in general”.

Orders/Societies:

- 2004 - Grand Master of the Order of the Golden Feedback Loop
 1996 - Knight of the Order of the Golden Feedback Loop
 1987 - Member of the [Sct. Omega fraternity](#), NTH/NTNU

Current PhD Candidates:

1. Ida-Louise Borlaug. Robust control of articulated intervention-AUVs.
2. Henrik Schmidt-Didlaukies (co-advised). Modelling and Control of Hyper-Redundant Underwater Manipulators.
3. Jørgen Sverdrup-Thygeson. Swimming Robot Manipulators for Subsea IMR.
4. Martin Syre Wiig. Motion Planning for Autonomous Underwater Vehicles.
5. Albert Sans-Muntadas. Autonomous underwater docking.
6. Michael Remo Palmén Ragazzon (co-advised). Nanoscale Robotics in Liquid Environments.

Graduated doctoral candidates:

1. Anna Magdalena Kohl (2017). Guidance and Control of Underwater Snake Robots Using Planar Sinusoidal Gaits, [NTNU thesis 2017:292](#).
2. Claudio Paliotta (2017). Control of Under-actuated Marine Vehicles, [NTNU thesis 2017:240](#).
3. Dennis J.W. Belleter (2016). Control of Underactuated Marine Vehicles in the Presence of Environmental Disturbances, [NTNU thesis 2016:337](#).
4. Signe Moe (2016). Guidance and Control of Robot Manipulators and Autonomous Marine Robots, [NTNU thesis 2016:322](#).
5. Eleni Kelasidi (2015). Modeling, Control and Energy Efficiency of Underwater Snake Robots, [NTNU thesis 2015:140](#).
6. Filippo Sanfilippo (2015). *Alternative and Flexible Control Methods for Robotic Manipulators*, [NTNU thesis 2015:192](#).
7. Daniel de Almeida Fernandes (2015). (Co-supervisor). *An Output Feedback Motion Control System for ROVs: Guidance Navigation and Control*, [NTNU thesis 2015:122](#).
8. Ehsan Rezapour (2015). *Model-based Locomotion Control of Underactuated Snake Robots*, [NTNU thesis 2015:46](#).

9. Walter Caharija (2014). *Integral Line-of-Sight Guidance and Control of Underactuated Marine Vehicles*, [NTNU thesis 2014:316](#).
10. Magnus Christian Bjerkgeng (2013). *Sensor-based Control of Industrial Manipulators*, [NTNU thesis 2013:240](#).
11. Johannes Schrimpf (2013). (Co-supervisor). *Sensor-based Real-time control of Industrial Robots*, [NTNU thesis 2013:225](#).
12. Arnfinn Aas Eielsen (2012). (Co-supervisor). *Topics in Control of Nanopositioning Devices*, [NTNU thesis 2012:315](#).
13. Mernout Burger (2011). *Disturbance Rejection using Conditional Integrators*, [NTNU thesis 2011:4](#).
14. Pål Liljebäck (2011). *Modelling, Development, and Control of Snake Robots*, [NTNU thesis 2011:70](#).
15. Pål Johan From (2010). (Co-supervisor) Off-Shore Robotics – Robust and Optimal Solutions for Autonomous Operations, [NTNU thesis 2010:96](#).
16. Anne Karin Bondhus (2010). Leader-Follower Synchronization of Mechanical Systems, [NTNU thesis 2010:58](#).
17. Even Børhaug (2008). Nonlinear Control and Synchronization of Mechanical Systems, [NTNU thesis 2008:298](#).
18. Jon Erling Gorset Refsnes (2008) (Co-supervisor). Nonlinear Model-Based Control of Slender Body AUVs, NTNU thesis 2008:60.
19. Aksel Andreas Transeth (2008). Modeling and Control of Snake Robots, [NTNU thesis 2008:2](#).
20. Erik Kyrkjebø (2007). Motion Coordination of Mechanical Systems: Leader-Follower Synchronization of Euler-Lagrange Systems using Output Feedback Control, [NTNU thesis 2007:60](#).

Post Docs:

1. Eleni Kelasidi, 2016-2018.
2. Konstantin Amelin, 2015-2016.
3. Pål Liljebäck, 2011-2015.
4. Christian Holden, 2011-2013.
5. Erik Kyrkjebø, 2007-2008.
6. Alexey Pavlov, 2005-2007.

Dissemination:

[Kristin Y. Pettersen \[People in Control\]](#), Control Systems Magazine, Vol. 37, No. 4, 2017, pp. 26-27.

[A giant subsea serpent](#), By Steinar Brandslet, Gemini, Starmus Special Edition, June 2017.

[水中で魚の健康診断や石油企業のお手伝い、泳ぐへび型ロボット／ノルウェー](#). By Asaki Abumi, Yahoo!JAPAN, 2017-06-27.

[Hun har utviklet slangeroboter og jobber med å lukeparkere skip](#), By Joachim Seehusen, Teknisk Ukeblad, 2017-03-12.

[This terrifying robot snake could repair machines at the bottom of the ocean](#), Mashable, 2016-11-18.

[See snake](#). By Russell McCulley, Upstream Technology, June, 2016, pp. 20-22.

[Simplified Subsea Intervention with an Electric Eel](#). By Gunnar Buvik, GCE Subsea, 2016-06-15.

[Slangeroboter utfører oppdrag i havet](#), By Egil M. Opland, Adressa and Adressa.no, 2016-04-19.

[Slangerobot på havbunnen](#), By Morten Andersen, NRK Dagsrevyen 21, 2016-04-18.

[Denne slangeroboten skal bli Statoils "vaktmester" på havbunnen](#), By Marius Lorentzen, E24, 2016-04-18.

[Slangeroboter skal revolusjonere vedlikeholdet subsea](#). By Ina Andersen, Teknisk Ukeblad, 2016-04-19.

[Slangeroboter forbedrer subsea inspeksjon og vedlikehold](#). By Kristin Y. Pettersen and Pål Liljebäck. DYP Magasinet, No. 2, 2016, pp. 18-19.

[Our swimming snake robots presented in different media](#).

[Our ground snake robots presented in different media](#).

[Dronene kommer](#), Forskningsrådets bilag om Forskningsdagene, VG 2013-09-17, side 7.

[Fremtiden er her](#). Bilag om teknisk kybernetikk i Dagens Næringsliv 6. mars 2013.

[AMOS skal gjøre verden smartere](#), By Svein Inge Meland, Adresseavisen 2013-02-26.

[Nysgjerrig på roboter](#). By Magnus Holm. Mangschou forlag, May 2012. ISBN 978-82-8238-050-8.

[Denne roboten kan gjøre egne valg](#). Dagbladet Magasinet, 2009-09-15.

[Robotbarna](#). By Åse Dragland. Gemini No. 3, 2009.

[Snake robot uses obstacles for locomotion](#). By Mason Inman. New Scientist, March 2008.

[Il serpente meccanico](#). By Alessio Balbi. TV Repubblica, 2008-03-05.

[Reparere...transportere...patruljere](#). By Hege J. Tunstad. Gemini No. 1, 2008

[Myk professor](#). By Heidi Bolstad. Adresseavisen Ukeadressa, 2007-02-17.

[Fartøy i flokk og formasjon](#). By Hege J. Tunstad. Gemini No. 5, 2006, and in Byens Næringsliv 2006-12-05. Koreografi for båt. Forskning.no, 2007-01-05.

[Seduced by snake robots](#). By Synnøve Ressem. Universitetsavisa 2006-09-21.

[Snake robot to the rescue](#). By Åse Dragland. Gemini 2005/2006.

Anna Konda is also addressed several places at the web, including Slashdot: [Anna Konda, the Robotic Firefighter](#), Engadget: [Anna Konda: the firefighting snakebot](#), Technovelgy: [Robotic Fire Hose Anna Konda](#), and Innovations report: [Snake robot to the rescue](#).

[Verdens mest avanserte brannslange](#). By Anne Marte Blindheim. - Dagbladet, 15.02.2005.

[Q&A: Norwegian Professor Kristin Ytterstad Pettersen](#). By Sarah Asp. - Viking Magazine, Sons of Norway, May 2005

[Ubåtprofessoren](#) By Beate Horg. Gemini Ung, 2004. Reprint: Yrke og utdanning - supplement to Adresseavisen 2005-02-02.

[Møt Slangeroboten Anna Conda](#). - NRK Midnatt. 18.40 News 2005-02-08.

[Med kontroll på det meste...](#)By Synnøve Ressem. Gemini no. 2, 2003. English Reprint: "In Full Control - Most of the Time." The Norseman no. 5, 2003, pp. 19-21.

Publication list – Kristin Y. Pettersen

Books

1. [*Sensing and Control for Autonomous Vehicles – Applications to Land, Water and Air Vehicles*](#), Eds. T.I. Fossen, K.Y. Pettersen and H. Nijmeijer, Lecture Notes in Control and Information Sciences, Vol. 474, Springer International Publishing, 2017. ISBN 978-3-319-55371-9.
2. [*Vehicle-manipulator Systems: Modeling for Simulation, Analysis and Control*](#), P.J. From, J.-T. Gravdahl and K.Y. Pettersen, Advances in Industrial Control, Springer-Verlag London. 2014. ISBN 978-1-4471-5462-4.
3. [*Snake Robots: Modelling, Mechatronics, and Control*](#), P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.-T. Gravdahl, Advances in Industrial Control, Springer-Verlag London, 2013. ISBN: 978-1-4471-2995-0.
4. [*Group Coordination and Cooperative Control*](#), Eds. K.Y. Pettersen, J.T.Gravdahl and H. Nijmeijer, Lecture Notes in Control and Information Sciences, Volume 336, Springer-Verlag Berlin-Heidelberg, 2006, ISBN: 3-540-33468-8.

Journal papers

1. J. Sverdrup-Thygeson, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "The Underwater Swimming Manipulator - A Bio-Inspired Solution for Subsea Operations", *IEEE Journal of Oceanic Engineering*, Vol 43, No. 2, 2018, pp. 402-417.
2. F. Sanfilippo, L.I. Hatledal, Y. Chu, K.Y. Pettersen and H. Zhang "A Benchmarking Framework for Control Methods of Maritime Cranes Based on the Functional Mock-up Interface", *IEEE Journal of Oceanic Engineering*, Vol. 43, No. 2, 2018, pp. 468-483.
3. E. Kelasidi, M. Jesmani, K.Y. Pettersen, and J.T. Gravdahl, "Locomotion efficiency optimization of biologically inspired snake robots", *Applied Sciences*, Vol. 8, No. 1, 2018.
4. K.Y. Pettersen, "Snake Robots", *Annual Reviews in Control*, Vol. 44, 2017, pp. 19-44.
5. Eleni Kelasidi, P. Liljebäck, K.Y. Pettersen and J.T. Gravdahl, "Integral Line-of-Sight Guidance for Path Following Control of Underwater Snake Robots: Theory and Experiments", *IEEE Transactions on Robotics*, Vol. 33, No. 3, 2017, pp. 610-628.
6. K.Y. Pettersen, "Lyapunov Sufficient Conditions for Uniform Semiglobal Exponential Stability", *Automatica*, Vol. 78, 2017, pp. 97-102.
7. A. Kohl, E. Kelasidi, A. Mohammadi, M. Maggiore and K.Y. Pettersen, "Planar Maneuvering Control of Underwater Snake Robots Using Virtual Holonomic Constraints", *Bioinspiration and Biomimetics*, Vol. 11, No. 6, 2016.
8. E. Kelasidi, M. Jesmani, K.Y. Pettersen, and J.T. Gravdahl, "Multi-objective optimization for efficient motion of underwater snake robots", *Springer Artificial Life and Robotics*, No. 4, Vol. 21, 2016.
9. W. Caharija, K.Y. Pettersen, M. Bibuli, P. Calado, E. Zereik, J. Braga, J.T. Gravdahl, A.J. Sørensen, M. Milovanovic and G. Bruzzone, "Integral Line-of-Sight Guidance and Control of Underactuated Marine Vehicles: Theory, Simulations and Experiments", *IEEE Transactions on Control Systems Technology*, Vol. 24, No. 5, 2016, pp. 1623-1642. This paper was awarded the [*IEEE Transactions on Control Systems Technology Outstanding Paper Award*](#), 2017.
10. E. Rezapour, K.Y. Pettersen, J.T. Gravdahl and A. Hofmann, "Formation Control of Underactuated Bio-inspired Snake Robots", in *Springer Artificial Life and Robotics*, No.3, Vol. 21, 2016, pp 282–294.
11. S. Moe, G. Antonelli, A. Teel, K.Y. Pettersen and J. Schrimpf, "Set-based Tasks within the Singularity-robust Multiple Task-priority Inverse Kinematics Framework: General Formulation, Stability Analysis and Experimental Results", in *Frontiers in Robotics and AI, section Robotic Control Systems*, April 2016.
12. A. Mohammadi, E. Rezapour, M. Maggiore and K.Y. Pettersen, "Maneuvering Control of Planar Snake Robots Using Virtual Holonomic Constraints", *IEEE Transactions on Control Systems Technology*, Vol. 24, No. 3, 2016, pp. 884-899.
13. F. Sanfilippo, L.I. Hatledal, A. Styve, K.Y. Pettersen and H. Zhang "Integrated Flexible Maritime Crane Architecture for the Offshore Simulation Centre AS (OSC)", *IEEE Journal of Oceanic Engineering*, Vol. 41, No. 2, 2016, pp. 450-461.

14. E. Kelasidi, P. Liljebäck, K.Y. Pettersen and J.T. Gravdahl, "Innovation in Underwater Robotics: Biologically Inspired Swimming Snake Robots", *IEEE Robotics and Automation Magazine*, Vol. 23, No.1, 2016, pp. 44-62.
15. A. Kohl, K.Y. Pettersen, E. Kelasidi and J.T. Gravdahl, "Planar Path Following of Underwater Snake Robots in the Presence of Ocean Currents", *IEEE Robotics and Automation Letters*, Vol. 1, No. 1, 2016, pp. 383-390.
16. E. Kelasidi, P. Liljebäck, K.Y. Pettersen and J.T. Gravdahl, "Experimental Investigation of Efficient Locomotion of Underwater Snake Robots for Lateral Undulation and Eel-like Motion Patterns", *Springer Robotics and Biomimetics*, Vol. 2, No. 8, 2015.
17. F. Sanfilippo, L.I. Hatledal, H. Zhang, M. Fago and K.Y. Pettersen, "Controlling Kuka Industrial Robots: Flexible Communication Interface JOpenShowVar" *IEEE Robotics and Automation Magazine*, Vol. 22, No. 4, 2015, pp. 96-109.
18. D. de A. Fernandes, A.J. Sørensen, K.Y. Pettersen, D.C. Donha, "Output feedback motion control system for observation class ROVs based on a high-gain state observer: theoretical and experimental results", *Control Engineering Practice*, Vol. 39, 2015, pp. 90-102.
19. T.I. Fossen, K.Y. Pettersen and R. Galeazzi, "Line-of-Sight Path Following for Dubins Paths with Adaptive Sideslip Compensation of Drift Forces", *IEEE Transactions on Control Systems Technology*, Vol. 23, No. 2, March 2015, pp. 820 – 827.
20. E. Rezapour, K.Y. Pettersen, P. Liljebäck, J.T. Gravdahl and E. Kelasidi, "Path Following Control of Planar Snake Robots using Virtual Holonomic Constraints: Theory and Experiments", *Springer Robotics and Biomimetics*, 1:3, 2014.
21. T.I. Fossen and K.Y. Pettersen, "On Uniform Semiglobal Exponential Stability (USGES) of Proportional Line-of-Sight Guidance Laws", *Automatica*, Vol. 50, No. 11, 2014, pp. 2912-2917.
22. M. Bjerckeng, P. Falco, C. Natale and K.Y. Pettersen, "Stability Analysis of a Hierarchical Architecture for Discrete-Time Sensor-Based Control of Robotic Systems", *IEEE Transactions on Robotics*, Vol. 30, No. 3, 2014, pp. 745-752.
23. W. Caharija, K.Y. Pettersen, A.J. Sørensen, M. Candeloro, and J.T. Gravdahl, "Relative Velocity Control and Integral LOS for Path Following of ASVs: Merging Intuition with Theory", *Part M: Journal of Engineering for the Maritime Environment*, Vol. 228, No. 2, 2014.
24. A.A. Eielson, M. Vagia, J.T. Gravdahl and K.Y. Pettersen, "Damping and Tracking Control Schemes for Nanopositioning", *IEEE/ASME Transactions on Mechatronics*, Vol. 19, No. 2, 2014, pp. 432 - 444.
25. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl, and J.T. Gravdahl, "Lateral undulation of snake robots: A simplified model and fundamental properties", *Robotica*, 31, 2013, pp 1005-1036.
26. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl, and J.T. Gravdahl, "Snake robot locomotion in environments with obstacles", *IEEE/ASME Transactions on Mechatronics*, Vol. 17, No. 6, 2012, pp. 1158 - 1169.
27. A.A. Eielson, J.T. Gravdahl and K.Y. Pettersen, "Adaptive Feed-Forward Hysteresis Compensation for Piezoelectric Actuators", *Review of Scientific Instruments*, Vol. 83, No. 8, 2012.
28. P. J. From, I. Schjølberg, J.T. Gravdahl, K.Y. Pettersen and T.I. Fossen, "On the boundedness property of the inertia matrix and skew-symmetric property of the Coriolis matrix for vehicle-manipulator systems", *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 134, No. 4, 2012.
29. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl, and J.T. Gravdahl, "A review on modelling, implementation, and control of snake robots", *Robotics and Autonomous Systems*, Vol. 60, no. 1, 2012, pp. 29-40.
30. P. Liljebäck, I.U. Haugstuen and K.Y. Pettersen, "Path following control of planar snake robots using a cascaded approach", *IEEE Transactions on Control Systems Technology*, Vol. 20, No. 1, 2012, pp. 111-126.
31. P.J. From, K.Y. Pettersen, and J.T. Gravdahl, "Singularity-Free Dynamic Equations of Spacecraft-Manipulator Systems", *ACTA Astronautica*, Vol. 69, Issues 11-12, 2011, pp. 1057–1065.
32. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl, and J.T. Gravdahl, "Controllability and stability analysis of planar snake robot locomotion", *IEEE Transactions on Automatic Control*, Vol. 56, No. 6, June 2011, pp. 1365-1380.
33. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl, "Experimental investigation of obstacle-aided locomotion with a snake robot", *IEEE Transactions on Robotics (T-RO)*, Vol. 27, No. 4, 2011, pp. 792-800.
34. E. Børhaug, A. Pavlov, E. Panteley and K.Y. Pettersen, "Straight Line Path Following for Formations of Underactuated Marine Surface Vessels", *IEEE Transactions on Control Systems Technology*, Vol. 19, No. 3, 2011, pp. 493-506.
35. M. Wondergem, E. Lefeber, K.Y. Pettersen and H. Nijmeijer, "Output feedback tracking of ships", *IEEE Transactions on Control Systems Technology*, Vol. 19, No. 2, 2011, pp. 442-448.
36. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl, "Hybrid modelling and control of obstacle-aided snake robot locomotion", *IEEE Transactions on Robotics (T-RO)*, Vol. 26, No. 5, 2010, pp. 781-799.

37. P. Liljebäck, Ø. Stavadahl K.Y. Pettersen, and J.T. Gravdahl, "Two new design concepts for snake robot locomotion in unstructured environments", *Paladyn Journal of Behavioral Robotics*, Vol. 1, No. 3, 2010, pp. 154–159.
38. P.J. From, V. Duindam, K.Y. Pettersen, J.T. Gravdahl and S. Sastry, "Singularity-Free Dynamic Equations of Vehicle-Manipulator Systems", in *Simulation Modelling Practice and Theory*, Vol. 18, No. 6, 2010.
39. A.A. Transeth, K.Y. Pettersen and P. Liljebäck, "A Survey on Snake Robot Modeling and Locomotion", *Robotica*, Vol. 27, no. 07, pp. 999-1015, 2009.
40. P. Liljebäck, Ø. Stavadahl and K.Y. Pettersen, "Modular Pneumatic Snakerobot: 3D Modelling, Implementation and Control", in *Modeling, Identification and Control*, Vol. 29, No. 1, 2008, pp. 21 - 28.
41. Pavlov and K.Y. Pettersen, "A new perspective on stable inversion of non-minimum phase nonlinear systems", in *Modeling, Identification and Control*, Vol. 29, No. 1, 2008, pp. 29 - 35.
42. J. E. Refsnes, A.J. Sørensen and K.Y. Pettersen, "Model-Based Output Feedback Control of Slender-Body Underactuated AUVs: Theory and Experiments", in *IEEE Transactions on Control Systems Technology*, Vol. 16, No. 5, 2008, pp. 930 – 946.
43. E. Kyrkjebø and K.Y. Pettersen, "Operational space synchronization of two robot manipulators through a virtual velocity estimate", *Modeling, Identification and Control*, Vol. 29, No. 2, 2008, pp. 59-66.
44. A. Transeth, R.I. Leine, C. Glocker, K.Y. Pettersen, "3D Snake Robot Motion: Non-smooth Modeling, Simulations, and Experiments", in *IEEE Transactions on Robotics*, Vol. 24, No. 2, 2008, pp. 361-376.
45. A. Transeth, R.I. Leine, C. Glocker, K.Y. Pettersen and P. Liljebäck, "Snake robot obstacle aided locomotion: Modeling, Simulations and Experiments", *IEEE Transactions on Robotics*, Vol. 24, No.1, 2008.
46. J. Refsnes, A.J. Sørensen and K.Y. Pettersen, "Output feedback control of slender body underwater vehicles with current estimation", *International Journal of Control*, Vol. 80, No. 7, 2007, pp. 1136-1150.
47. E. Kyrkjebø, K.Y. Pettersen. M. Wondergem and H. Nijmeijer, "Output synchronization control of ship replenishment operations: Theory and experiments", *Control Engineering Practice*, Vol. 15, No. 6, 2006.
48. E. Fredriksen and K.Y. Pettersen, "Global κ -exponential way-point manoeuvring of ships: Theory and Experiments", *Automatica*, Vol. 42, No. 4, 2006, pp. 677-687.
49. R. Haugom, O.K. Solbjørg, K.Y. Pettersen and T.I. Eikaas, "A Simulation game for nonlinear control theory education", in *Modeling, Identification and Control*, Vol. 28, No. 2, April 2006, pp. 45-61.
50. Ø. Stavadahl, A.K. Bondhus, K.Y. Pettersen and K. Malvig, "Optimal Statistical Operators for 3-Dimensional Rotational Data", *Robotica*, Vol. 23, No. 3, 2005, pp. 283 - 292. A reprint of this paper is published in *Modeling Identification and Control*, Vol. 26, No. 4, 2005.
51. K.Y. Pettersen, F. Mazenc and H. Nijmeijer, "Global Uniform Asymptotic Stabilization of an Underactuated Surface Vessel: Experimental Results", *IEEE Transactions on Control Systems Technology*, Vol. 12, No. 6, Nov. 2004, pp. 891-903. This paper was awarded the [*IEEE Transactions on Control Systems Technology Outstanding Paper Award*](#), 2006.
52. A.A.J. Lefeber, K. Y. Pettersen and H. Nijmeijer "Tracking control of an under-actuated ship", *IEEE Transactions on Control Systems Technology*, Vol. 11, No. 1, Jan. 2003, pp. 52-61.
53. F. Mazenc, K.Y. Pettersen and H. Nijmeijer, "Global Uniform Asymptotic Stabilization of an Underactuated Surface Vessel", *IEEE Transactions on Automatic Control*, Vol. 47, No. 10, Oct. 2002, pp. 1759-1762.
54. K.Y. Pettersen and H. Nijmeijer "Underactuated Ship Tracking Control: Theory and Experiments", *International Journal of Control*, Vol. 74, No. 14, 2001, pp. 1435-1446.
55. K. Y. Pettersen and H. Nijmeijer "Semi-Global Practical Stabilization and Disturbance Adaptation for an Underactuated Ship", *Modeling, Identification and Control*, Vol. 22, No. 2, April 2001, pp. 89-101.
56. I. Fantoni, R. Lozano, F. Mazenc and K.Y. Pettersen "Stabilization of a Nonlinear Underactuated Hovercraft", *International Journal of Robust and Nonlinear Control*, Vol. 10, No. 8, July 2000, pp. 645-654.
57. K.Y. Pettersen and T.I. Fossen "Underactuated Dynamic Positioning of a Ship - Experimental Results", *IEEE Transactions on Control Systems Technology*, Vol. 8, No. 5, Sep. 2000, pp. 856-863.
58. K.Y. Pettersen and H. Nijmeijer "Global Practical Stabilization and Tracking for an Underactuated ship - a Combined Averaging and Backstepping Approach", *Modeling, Identification and Control*, Vol. 20, No. 4, 1999, pp. 189-199.
59. K.Y. Pettersen and O. Egeland "Time-Varying Exponential Stabilization of the Position and Attitude of an Underactuated Autonomous Underwater Vehicle", *IEEE Transactions on Automatic Control*, Vol. 44, No. 1, 1999, pp. 112-115.
60. K.Y. Pettersen and O. Egeland "Exponential Stabilization of an Underactuated Surface Vessel", *Modeling, Identification and Control*, Vol.18, No.3, 1997, pp. 239-248.

Book Chapters

1. A.M. Kohl, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, " Model-Based LOS Path-Following Control of Planar Underwater Snake Robots", in *Sensing and Control for Autonomous Vehicles – Applications to Land, Water and Air Vehicles*, Eds. T.I. Fossen, K.Y. Pettersen and H. Nijmeijer, Lecture Notes in Control and Information Sciences, Vol. 474, Springer International Publishing, 2017, pp. 343-364.
2. E.K. Xidias, N.A. Aspragathos, C. Paliotta and K.Y. Pettersen, "Path Planning for Formation Control of Autonomous Vehicles", in *Advances in Robot Design and Intelligent Control*, Advances in Intelligent Systems and Computing - AISC, Eds. A. Rodić, T. Borangiu, Vol. 540, Springer-Verlag, 2017, pp. 302-309.
3. D.J.W. Belleter and K.Y. Pettersen, "Leader-Follower Synchronisation for a Class of Underactuated Systems", in *Nonlinear Systems: Techniques for Dynamical Analysis and Control*, Eds. N. van de Wouw, E. Lefeber, I. Lopez Arteaga, Lecture Notes in Control and Information Sciences, Vol. 470, Springer-Verlag, 2017, pp. 157-179.
4. K.Y. Pettersen, "Underactuated Marine Control Systems", in *Encyclopedia of Systems and Control*, Eds. J. Baillieul and T. Samad, Springer-Verlag, London, 2015.
5. R. Galeazzi and K.Y. Pettersen, "Controlling Parametric Resonance: Induction and Stabilization of Unstable Motions", in *Parametric Resonance in Dynamical Systems*, Eds. T. I. Fossen and H. Nijmeijer, Springer Verlag, June 2011, pp. 305-327.
6. E. Børhaug, A. Pavlov and K.Y. Pettersen, "Cross-track formation control of underactuated autonomous underwater vehicles", in *Group Coordination and Cooperative Control*, Eds. K.Y. Pettersen, J.T.Gravdahl and H. Nijmeijer, Lecture Notes in Control and Information Sciences, Volume 336, Springer-Verlag, 2006, pp. 35-54.
7. E. Kyrkjebø, E. Panteley, A. Chaillet and K.Y. Pettersen, "A virtual vehicle approach to underway replenishment", in *Group Coordination and Cooperative Control*, Eds. K.Y. Pettersen, J.T.Gravdahl and H. Nijmeijer, Lecture Notes in Control and Information Sciences, Volume 336, Springer-Verlag, 2006, pp. 171-190
8. K.Y. Pettersen and H. Nijmeijer, "Output Feedback Tracking Control for Ships", in *New Directions in Nonlinear Observer Design*, Eds. H. Nijmeijer and T.I. Fossen, Springer, 1999, pp. 311-334.
9. O. Egeland and K.Y. Pettersen, "Free-Floating Robotic Systems", in *Control Problems in Robotics and Automation*, Eds. B. Siciliano and K.P. Valavanis, Lecture Notes in Control and Information Sciences, Volume 230, Springer-Verlag, London, 1998, pp.119-134

Refereed conference papers

1. M. S. Wiig, K.Y. Pettersen, E-L. M. Ruud and T. R. Krogstad, "An Integral Line-of-Sight Guidance Law with a Speed-dependent Lookahead Distance", *Proc. 2018 European Control Conference*, Limassol, Cyprus, June 12-15, 2018.
2. M.F. Amundsen, J. Sverdrup-Thygeson, E. Kelasidi and K.Y. Pettersen, "Inverse Kinematic Control of a Free-Floating Underwater Manipulator Using the Generalized Jacobian Matrix", *Proc. 2018 European Control Conference*, Limassol, Cyprus, June 12-15, 2018.
3. A. Sans-Muntadas, E. Brekke and K.Y. Pettersen, "Vehicle Guidance with Control Action Computed by a Rao-Blackwellized Particle Filter", *Proc. 2017 Asian Control Conference*, Gold Coast, Australia, December 17-20, 2017.

4. M. S. Wiig, K.Y. Pettersen and T.R. Krogstad, "A Reactive Collision Avoidance Algorithm for Vehicles with Underactuated Dynamics", *Proc. 56th IEEE Conference on Decision and Control*, Melbourne, Australia, Dec. 12-15, 2017.
5. A.M. Kohl, S. Moe, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Set-based path following and obstacle avoidance for underwater snake robots", *Proc. 2017 IEEE Int. Conf. on Robotics and Biomimetics*, Macau, China, Dec. 5-8, 2017. **IEEE-ROBIO 2017 Best Conference Paper Award.**
6. I.L. Borlaug, J.T. Gravdahl, J. Sverdrup-Thygeson and K.Y. Pettersen, "Trajectory tracking for underwater swimming manipulators using a super twisting algorithm", *Proc. 3rd International Symposium on Swarm Behavior and Bio-Inspired Robotics (SWARM 2015)*, Kyoto, Japan, Oct. 28-30, 2015.
7. A. Sans-Muntadas, K.Y. Pettersen, E. Brekke and E. Kelasidi, "Learning an AUV docking maneuver with a convolutional neural network", *Proc. OCEANS '17*, Anchorage, AK, 18-22 Sep. 2017.
8. J. Sverdrup-Thygeson, S. Moe, K.Y. Pettersen and J.T. Gravdahl, "Kinematic singularity avoidance for robot manipulators using set-based manipulability tasks", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
9. A. Kohl, K.Y. Pettersen and J.T. Gravdahl, "Velocity and orientation control of underwater snake robots using absolute velocity feedback", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
10. M.R.P. Ragazzon, J.T. Gravdahl and K.Y. Pettersen, "Exponential Convergence Bounds in Least Squares Estimation: Identification of Viscoelastic Properties in Atomic Force Microscopy", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017. **IEEE CCTA 2017 Best Student Paper Award Finalist.**
11. A. Sans-Muntadas, E. Kelasidi, K.Y. Pettersen and E. Brekke, "Spiral path planning for docking of underactuated vehicles with limited FOV", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
12. S. Moe and K.Y. Pettersen, "Set-Based Line-of-Sight (LOS) Path Following with Collision Avoidance for Underactuated Unmanned Surface Vessels under the Influence of Ocean Currents", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
13. M. S. Wiig, K.Y. Pettersen and A.V. Savkin, "A Reactive Collision Avoidance Algorithm for Nonholonomic Vehicles", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
14. E. Kelasidi, K.Y. Pettersen, J.T. Gravdahl, S. Strømsøyen and A.J. Sørensen, "Modeling and Propulsion Methods of Underwater Snake Robots", *Proc. 1st IEEE Conference on Control Technology and Applications*, Kohala Coast, Hawaii, Aug. 27-30, 2017.
15. M. Maghenem, D.J.W. Belleter, C. Paliotta and K.Y. Pettersen, "Observer Based Path Following for Underactuated Marine Vessels in the Presence of Ocean Currents: A Local Approach", *Proc. IFAC 2017 World Congress*, Toulouse, France, 9-14 July, 2017.
16. E. Kelasidi, K.Y. Pettersen, A.M. Kohl and J.T. Gravdahl, "Experimental Investigation of Path Following for an Underwater Snake Robot with a Caudal Fin", *Proc. IFAC 2017 World Congress*, Toulouse, France, 9-14 July, 2017.
17. C. Paliotta, E. Lefeber and K.Y. Pettersen, "Trajectory Tracking of Under-Actuated Marine Vehicles", *Proc. 55th Conference on Decision and Control*, Las Vegas, NV, Dec. 12-14, 2016.
18. J. Sverdrup-Thygeson, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "The Underwater Swimming Manipulator – A Bio-Inspired AUV", *Proc. 2016 IEEE OES Autonomous Underwater Vehicles*, Tokyo, Japan, Nov. 6-8, 2016.
19. E. Kelasidi, K.Y. Pettersen, P. Liljebäck and J.T. Gravdahl, "Locomotion Efficiency of Underwater Snake Robots with Thrusters", *Proc. IEEE International Symposium on Safety, Security and Rescue Robotics*, Lausanne, Switzerland, 23 – 27 October, 2016.
20. A. Sans-Muntadas, K.Y. Pettersen, E. Brekke and V.F. Henriksen, "A Hybrid Approach to Underwater Docking of AUVs with cross-current", *Proc. Oceans 2016*, Monterey, CA, Sep. 19-23, 2016.
21. C. Paliotta and K.Y. Pettersen, "Leader-Follower Synchronization with disturbance rejection", *Proc. 2016 IEEE Conference on Control Application*, Buenos Aires, Argentina, 19-22 September, 2016.
22. B.-O.H. Eriksen, M. Breivik, K.Y. Pettersen and M. S. Wiig, "A Modified Dynamic Window Algorithm for Horizontal Collision Avoidance for AUVs", *Proc. 2016 IEEE Conference on Control Application*, Buenos Aires, Argentina, 19-22 September, 2016.
23. J. Sverdrup-Thygeson, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "A control framework for biologically inspired underwater swimming manipulators equipped with thrusters", *Proc. 10th IFAC Conference on Control Applications in Marine Systems*, Trondheim, Norway, Sep. 13-16, 2016.

24. M.S. Wiig, W. Caharija, T. Krogstad and K.Y. Pettersen, "Integral Line-of-Sight Guidance of Underwater Vehicles without Neutral Buoyancy", *Proc. 10th IFAC Conference on Control Applications in Marine Systems*, Trondheim, Norway, Sep. 13-16, 2016.
25. A. Sans-Muntadas, K.Y. Pettersen and E. Brekke, "Vision Restricted Path Planning and Control for Underactuated Vehicles", *Proc. 10th IFAC Conference on Control Applications in Marine Systems*, Trondheim, Norway, Sep. 13-16, 2016.
26. J. Sverdrup-Thygeson, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Modeling of Underwater Swimming Manipulators", *Proc. 10th IFAC Conference on Control Applications in Marine Systems*, Trondheim, Norway, Sep. 13-16, 2016.
27. D.J.W. Belleter, C. Paliotta, M. Maggiore and K.Y. Pettersen, "Path Following for Underactuated Marine Vessels", *Proc. 10th IFAC Symposium on Nonlinear Control Systems, (NOLCOS 2016)*, Monterey, CA, August 23-25, 2016.
28. M. Vagia, A.A. Eielsen, J.T. Gravdahl and K.Y. Pettersen, "Nonlinear Tracking Control Control Scheme for a Nanopositioner", *Proc. 24th Mediterranean Conference on Control and Automation*, Athens, Greece, June 21-24, 2016.
29. E. Kelasidi, A.M. Kohl, K.Y. Pettersen and J.T. Gravdahl, "Waypoint guidance control for underwater snake robots exposed to ocean currents", *Proc. 24th Mediterranean Conference on Control and Automation*, Athens, Greece, June 21-24, 2016.
30. S. Moe and K.Y. Pettersen, "Set-Based Line-of-Sight (LOS) Path Following with Collision Avoidance for Underactuated Unmanned Surface Vessel", *Proc. 24th Mediterranean Conference on Control and Automation*, Athens, Greece, June 21-24, 2016.
31. S. Moe, K.Y. Pettersen, T.I. Fossen and J.T. Gravdahl, "Line-of-Sight Curved Path Following for Underactuated USVs and AUVs in the Horizontal Plane under the influence of Ocean Currents", *Proc. 24th Mediterranean Conference on Control and Automation*, Athens, Greece, June 21-24, 2016.
32. C. Paliotta and K.Y. Pettersen, "Geometric Path Following with Ocean Current Estimation for ASVs and AUVs", *Proc. 2016 American Control Conference*, Boston, MA, July 6-8, 2016.
33. S. Moe, A. Teel, G. Antonelli and K.Y. Pettersen, "Stability analysis for Set-based Control within the Singularity-robust Multiple Task-priority Inverse Kinematics Framework", *Proc. 54th IEEE Conference on Decision and Control*, Osaka, Japan, December 15-18, 2015.
34. D.J.W. Belleter and K.Y. Pettersen, "3D Coordinated Path Following with Disturbance Rejection for Formations of Under-actuated Agents", *Proc. 54th IEEE Conference on Decision and Control*, Osaka, Japan, December 15-18, 2015.
35. F. Sanfilippo and K.Y. Pettersen, "OpenMRH: a Modular Robotic Hand Generator Plugin for OpenRAVE", *Proc. 2015 IEEE International Conference on Robotics and Biomimetics (ROBIO 2015)*, Zhuhai, China, December 6 – 9, 2015.
36. S. Moe, G. Antonelli, K.Y. Pettersen and J. Schrimpf, "Experimental Results for Set-based Control within the Singularity-robust Multiple Task-priority Inverse Kinematics Framework", *Proc. IEEE 2015 IEEE International Conference on Robotics and Biomimetics (ROBIO 2015)*, Zhuhai, China, December 6 – 9, 2015.
37. A. Kohl, K.Y. Pettersen E. Kelasidi and J.T. Gravdahl, "Analysis of underwater snake robot locomotion based on a control-oriented model", *Proc. 2015 IEEE International Conference on Robotics and Biomimetics (ROBIO 2015)*, Zhuhai, China, December 6 – 9, 2015.
38. F. Sanfilippo, P.B.T. Weustink and K.Y. Pettersen, "A Coupling Library for the Force Dimension Haptic Devices and the 20-sim Modelling and Simulation Environment", *Proc. 41st Annual Conference of the IEEE Industrial Electronics Society*, Yokohama, Japan, Nov. 9-12, 2015.
39. E. Rezapour, K.Y. Pettersen, J.T. Gravdahl and A. Hofmann, "Cross-Track Formation Control of Underactuated Bio-inspired Snake Robots", *Proc. 1st International Symposium on Swarm Behavior and Bio-Inspired Robotics (SWARM 2015)*, Kyoto, Japan, Oct. 28-30, 2015.
40. E. Kelasidi, M. Jesmani, K.Y. Pettersen, and J.T. Gravdahl, "Multi-objective optimization for efficient motion of underwater snake robots", *Proc. 1st International Symposium on Swarm Behavior and Bio-Inspired Robotics (SWARM 2015)*, Kyoto, Japan, Oct. 28-30, 2015.
41. A.M. Kohl, E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "A control-oriented model of underwater snake robots exposed to currents", *Proc. 2015 IEEE Multi-Conference on Systems and Control*, Sydney, Australia, September 21-23, 2015.
42. F. Sanfilippo and K.Y. Pettersen, "A sensor fusion wearable health-monitoring system with haptic feedback", *Proc. 11th International Conference on Innovations in Information Technology (IIT'15)*, Dubai, UAE, November 01-03, 2015. **IEEE IIT 2015 Best Student Poster Award.**

43. A. Sans-Muntadas, E.F. Brekke, Ø. Hegrenæs and K.Y. Pettersen, "Navigation and Probability Assessment for Successful AUV Docking using USBL", *Proc. 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 24-26, 2015.
44. W. Caharija, K.Y. Pettersen, P. Calado and J. Braga, "A Comparison Between the ILOS Guidance and the Vector Field Guidance", *Proc. 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 24-26, 2015.
45. C. Paliotta, D.J.W. Belleter and K.Y. Pettersen, "Adaptive Source Seeking with Leader-Follower Formation Control", *Proc. 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 24-26, 2015.
46. M.S. Wiig, K.Y. Pettersen and T.R. Krogstad, "Uniform Semiglobal Exponential Stability of Integral Line-of-Sight Guidance Laws", *Proc. 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 24-26, 2015.
47. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Energy efficiency of underwater robots", *Proc. 10th IFAC Conference on Manoeuvring and Control of Marine Craft*, Copenhagen, Denmark, August 24-26, 2015.
48. D.J.W. Belleter and K.Y. Pettersen, "Path Following with Disturbance Rejection for Inhomogeneous Formations with Underactuated Agents", *Proc. 2015 European Control Conference, Linz, Austria*, July 15 – 17, 2015.
49. C. Paliotta and K.Y. Pettersen, "Source Seeking With a Variable Leader Multi-Agent Fixed Topology Network" *Proc. 2015 European Control Conference*, Linz, Austria, July 15 – 17, 2015.
50. D.J.W. Belleter and K.Y. Pettersen, "Underactuated Leader-Follower Synchronisation for Multi-Agent Systems", *Proc. 2015 American Control Conference*, Chicago, IL, July 1 – 3, 2015.
51. M.R.P. Ragazzon, J.T. Gravdahl, K.Y. Pettersen and A.A. Eielsen, "Topography and Force Imaging in Atomic Force Microscopy by State and Parameter Estimation", *Proc. 2014 American Control Conference*, Chicago, IL, July 1 – 3, 2015.
52. G. Antonelli, S. Moe and K.Y. Pettersen, "Incorporating set-based control within the singularity-robust multiple task-priority inverse kinematics", *Proc. 23rd Mediterranean Conference on Control and Automation*, Meliá Costa del Sol, Torremolinos, Spain, June 16-19, 2015.
53. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Energy efficiency of underwater snake robot locomotion", *Proc. 23rd Mediterranean Conference on Control and Automation*, Meliá Costa del Sol, Torremolinos, Spain, June 16-19, 2015.
54. F. Sanfilippo and K.Y. Pettersen, "XBee positioning system with embedded haptic feedback for dangerous offshore operations: a preliminary study", *Proc. MTS/IEEE Oceans '15*, Genova, Italy, May 18-21, 2015.
55. F. Sanfilippo, L.I. Hatledal, H. Zhang, W. Rekdalsbakken and K.Y. Pettersen, "A Wave Simulator and Active Heave Compensation Framework for Demanding Offshore Crane Operations", *Proc. 2015 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE 2015)*, Halifax, Nova Scotia Canada, May 3-6, 2015.
56. F. Sanfilippo, H. Zhang and K.Y. Pettersen, "The New Architecture of ModGrasp for Mind-Controlled Low-Cost Sensorised Modular Hands", *Proc. 2015 IEEE International Conference on Industrial Technology*, Sevilla, Spain, March 17-19, 2015.
57. D.J.W. Belleter and K.Y. Pettersen, "Path Following for Formations of Underactuated Marine Vessels under Influence of Constant Ocean Currents", *Proc. 53rd IEEE Conference on Decision and Control*, Los Angeles, CA, Dec. 15 – 17, 2014.
58. A. Mohammadi, E. Rezapour, M. Maggiore and K.Y. Pettersen, "Direction Following Control of Planar Snake Robots Using Virtual Holonomic Constraints", *Proc. 53rd IEEE Conference on Decision and Control*, Los Angeles, CA, Dec. 15 – 17, 2014.
59. E. Rezapour, A. Hofmann and K.Y. Pettersen, "Maneuvering Control of Planar Snake Robots", *Proc. 2014 International Conference on Robotics and Biomimetics (ROBIO 2014)*, Bali, Indonesia, Dec. 5-10, 2014.
60. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "A control-oriented model of underwater snake robots", *Proc. 2014 International Conference on Robotics and Biomimetics (ROBIO 2014)*, Bali, Indonesia, Dec. 5-10, 2014.
61. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Stability Analysis of Underwater Snake Robot Locomotion Based on Averaging Theory", *Proc. 2014 International Conference on Robotics and Biomimetics (ROBIO 2014)*, Bali, Indonesia, Dec. 5-10, 2014.
62. S. Moe, G. Antonelli and K.Y. Pettersen, "Null-space-based behavior guidance of planar dual-arm UVMS", *Proc. 2014 International Conference on Robotics and Biomimetics (ROBIO 2014)*, Bali, Indonesia, Dec. 5-10, 2014.

63. E. Rezapour, A. Hofmann, K.Y. Pettersen, A. Mohammadi and M. Maggiore, "Virtual Holonomic Constraint Based Direction Following Control of Planar Snake Robots Described by a Simplified Model", *Proc. 2014 IEEE Multi-Conference on Systems and Control*, Nice/Antibes, France, Oct. 8-10, 2014.
64. E. Kelasidi, K.Y. Pettersen, P. Liljebäck and J.T. Gravdahl, "Integral Line-of-Sight for path-following of underwater snake robots", *Proc. 2014 IEEE Multi-Conference on Systems and Control*, Nice/Antibes, France, Oct. 8-10, 2014.
65. M. Bjerkgeng, J. Schrimpf, T. Myhre and K.Y. Pettersen, "Fast Dual-Arm Manipulation using Variable Admittance Control: Implementation and Experimental Results", *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, Illinois, Sept. 14–18, 2014.
66. P. Liljebäck, Ø. Stavadahl, K. Y. Pettersen and J.T. Gravdahl, "Mamba – A Waterproof Snake Robot with Tactile Sensing", *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, Illinois, Sept. 14–18, 2014.
67. P. Liljebäck, K. Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl, "A 3D Motion Planning Framework for Snake Robots", *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, Illinois, Sept. 14–18, 2014.
68. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "Modeling of underwater snake robots moving in a vertical plane in 3D", *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Chicago, Illinois, Sept. 14–18, 2014.
69. W. Caharija, E. Grøtli and K.Y. Pettersen, "Improved Counter-Current and Co-Current Guidance of Underactuated Marine Vehicles with Semiglobal Stability Properties", *Proc. 19th IFAC World Congress*, Cape Town, South Africa, 24-29 Aug. 2014.
70. M. Bibuli, W. Caharija, K.Y. Pettersen, G. Bruzzone and M. Caccia, "ILOS Guidance - Experiments and Tuning", *Proc. 19th IFAC World Congress*, Cape Town, South Africa, 24-29 Aug. 2014.
71. F. Sanfilippo, H. Zhang, K.Y. Pettersen, G. Salvietti and D. Prattichizzo, "ModGrasp: an Open-Source Rapid-Prototyping Framework for Designing Low-Cost Sensorised Modular Hands", *Proc. 5th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob 2014)*, São Paulo, Brazil, Aug. 12-15, 2014. **IEEE BioRob 2014 Best Student Paper Award Finalist.**
72. E. Rezapour, K.Y. Pettersen, J. T. Gravdahl and P. Liljebäck, "Body Shape and Orientation Control for Locomotion of Biologically-Inspired Snake Robots", *Proc. 5th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob 2014)*, São Paulo, Brazil, Aug. 12-15, 2014.
73. F. Sanfilippo, L.I. Hatledal, H. Zhang and K.Y. Pettersen, "A Mapping Approach for Controlling Different Maritime Cranes and Robots using ANN", *Proc. IEEE International Conference on Mechatronics and Automation (ICMA)*, Tianjin, China, August 3-6, 2014.
74. F. Sanfilippo, M. Fago, L.I. Hatledal, K.Y. Pettersen and H. Zhang, "JOpenShowVar: an Open-Source Cross-Platform Communication Interface to Kuka Robots", *Proc. IEEE International Conference on Information and Automation & IEEE International Conference on Automation and Logistics*, Hailar, Hulun Buir, Inner Mongolia, China, July 26-29, 2014. **IEEE ICIA2014 Best Student Paper Award.**
75. E. Kelasidi, K.Y. Pettersen and J.T. Gravdahl, "A waypoint guidance strategy for underwater snake robots", *Proc. 22nd Mediterranean Conference on Control and Automation*, Palermo, Italy, June 16-19, 2014.
76. S. Moe, W. Caharija, K.Y. Pettersen and I. Schjøberg, "Path Following of Underactuated Underwater Vehicles in the Presence of Unknown Ocean Currents", *Proc. 33th International Conference on Ocean, Offshore and Arctic Engineering*, San Fransisco, CA, June 8-13, 2014.
77. S. Moe, W. Caharija, K.Y. Pettersen and I. Schjøberg, "Path Following of Underactuated Marine Surface Vessels in the Presence of Unknown Ocean Currents", *Proc. 2014 American Control Conference*, Portland, Oregon, June 4-6, 2014.
78. P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl, "Compliant Control of the Body Shape of Snake Robots", *Proc. 2014 IEEE International Conference on Robotics and Automation*, Hong Kong, China, 31 May – 5 June, 2014.
79. E. Kelasidi, K.Y. Pettersen, J.T. Gravdahl and P. Liljebäck, "Modeling of Underwater Snake Robots", *Proc. IEEE International Conference on Robotics and Automation*, Hong Kong, China, 31 May – 5 June, 2014.

80. E. Rezapour, K.Y. Pettersen, P. Liljebäck and J.T. Gravdahl, "Differential Geometric Modelling and Robust Path Following Control of Snake Robots Using Sliding Mode Techniques", *Proc. IEEE International Conference on Robotics and Automation*, Hong Kong, China, 31 May – 5 June, 2014.
81. F. Sanfilippo, L.I. Hatledal, H.G. Schaathun, K.Y. Pettersen and H.Zhang, "A Universal Control Architecture for Maritime Cranes and Robots using Genetic Algorithms as a Possible Mapping Approach", *Proc. 2013 IEEE International Conference on Robotics and Biomimetics (IEEE-ROBIO 2013)*, Shenzhen, China, 12-14 Dec. 2013.
82. E. Rezapour, K.Y. Pettersen, P. Liljebäck and J.T. Gravdahl, "Path Following Control of Planar Snake Robots Using Virtual Holonomic Constraints", *Proc. 2013 IEEE International Conference on Robotics and Biomimetics (IEEE-ROBIO 2013)*, Shenzhen, China, 12-14 Dec. 2013.
IEEE-ROBIO 2013 Best Student Paper Award Finalist.
83. M. Bjerkgeng, P. Falco, C. Natale and K.Y. Pettersen, "Discrete-Time Stability Analysis of a Motion Control Architecture for Heterogeneous Robotic Systems", *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems*, Tokyo, Japan, 3-7 Nov. 2013.
84. W. Caharija, K.Y. Pettersen and J.T. Gravdahl, "Path Following of Underactuated Surface Vessels in Presence of Unknown Constant Environmental Forces: Preliminary Results", *Proc. 9th IFAC Conference on Control Applications in Marine Systems, (CAMS 2013)*, Osaka, Japan, Sep. 17-20, 2013.
85. K.Y. Pettersen, P. Liljebäck, Ø. Stavdahl and J.T. Gravdahl, Snake Robots - From Biology to Nonlinear Control, Semi-Plenary paper at *IFAC Symposium on Nonlinear Control*, Toulouse, France, Sep. 4-6, 2013.
86. M. Vagia, A.A. Eielsen, J.T. Gravdahl and K.Y. Pettersen, "Design of a nonlinear damping control scheme for nanopositioning", *Proc. 2013 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2013)*, Wollongong, Australia, July 9-12, 2013.
87. W. Caharija, K.Y. Pettersen and J.T. Gravdahl, "Counter-Current and Co-Current Guidance of Underactuated Unmanned Marine Vehicles", in *Proc. 2013 IFAC Intelligent Autonomous Vehicles Symposium*, Gold Coast, Australia, 26-28 June, 2013.
88. W. Caharija, K.Y. Pettersen and J.T. Gravdahl, "Path Following of Marine Surface Vessels with Saturated Transverse Actuators", in *Proc. 2013 American Control Conference*, Washington, DC, June 17-19, 2013.
89. A.A. Eielsen, M. Vagia, J.T. Gravdahl and K.Y. Pettersen, "Fixed-Structure, Low-Order Damping and Tracking Control Schemes for Nanopositioning", in *Proc. 6th IFAC Symposium on Mechatronic Systems (Mechatronics '13)*, Hangzhou, China, April 10-12, 2013.
90. C. Holden, K.Y. Pettersen, Ø. Stavdahl, J.T. Gravdahl, "Optimal Mapping from a Continuous 3D Curve to the Position and Shape of a Snake Robot", in *Proc. 2013 IEEE International Conference on Mechatronics (ICM 2013)*, Vicenza, Italy, Feb. 27 - March 1, 2013.
91. W. Caharija, K.Y. Pettersen, J.T. Gravdahl and E. Børhaug, "Path Following of Underactuated Autonomous Underwater Vehicles in the Presence of Ocean Currents", in *Proc. 51th IEEE Conference on Decision and Control*, Maui, Hawaii, Dec. 2012.
92. P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl, "A Control Framework for Snake Robot Locomotion based on Shape Control Points Interconnected by Bézier Curves", in *Proc. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2012)*, Vilamoura, Algarve, Portugal, October 7-12, 2012.
93. P. Liljebäck, Ø. Stavdahl, K.Y. Pettersen and J.T. Gravdahl, "A Modular and Waterproof Snake Robot Joint Mechanism with a Novel Force/Torque Sensor", in *Proc. 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2012)*, Vilamoura, Algarve, Portugal, October 7-12, 2012.
94. W. Caharija, M. Candeloro, K.Y. Pettersen and A.J. Sørensen, "Relative Velocity Control and Integral LOS for Path Following of Underactuated Surface Vessels", in *Proc. 9th IFAC Conference on Manoeuvring and Control of Marine Craft*, Arenzano, Italy, Sep. 2012.
MCMC 2012 Best Student Paper Award.
95. W. Caharija, K.Y. Pettersen, J.T. Gravdahl and E. Børhaug, "Integral LOS Guidance for Horizontal Path Following of Underactuated Autonomous Underwater Vehicles in the Presence of Vertical Ocean Currents", in *Proc. American Control Conference*, Montréal, Canada, June 2012.
96. M. Bjerkgeng and K.Y. Pettersen, "A new Coriolis matrix factorization", in *Proc. IEEE International Conference on Robotics and Automation*, RiverCentre, Saint Paul, Minnesota, May 14-18, 2012.

97. W. Caharija, K.Y. Pettersen, J.T. Gravdahl and A.J. Sørensen, "Topics on Current Compensation for Path Following Applications of Underactuated Underwater Vehicles", in *Proc. IFAC Workshop on Navigation, Guidance and Control of Underwater Vehicles* (NGCUV2012), Porto, Portugal, April 10-12, 2012.
98. M. Bjerkgeng, A.A. Transeth, K.Y. Pettersen, E. Kyrkjebø and S.A. Fjerdingen, "Active camera control with obstacle avoidance for remote operations with industrial manipulators: Implementation and experimental results", in *Proc. 2011 IEEE/RSJ International Conference on Intelligent Robots and Systems*, San Francisco, CA, September 25-30, 2011, pp. 247 - 254.
- IROS 2011 Best Application Paper Award Finalist.**
99. M. Bjerkgeng, K.Y. Pettersen and E. Kyrkjebø, "Stereographic Projection for Industrial Manipulator Tasks: Theory and Experiments", in *Proc. 2011 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2011)*, San Francisco, CA, September 25-30, 2011, pp. 4676-4683.
- 100.A. Eielsen, M. Burger, J.T. Gravdahl and K.Y. Pettersen, "PI2-Controller Applied to a Piezoelectric Nanopositioner Using Conditional Integrators and Optimal Tuning", in *Proc. 18th IFAC World Congress*, Milano, 28 Aug – 2 Sep, 2011.
- 101.P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl, "Path following control of snake robots in unstructured environments", in *Proc. IEEE Conference on Robotics and Automation*, Shanghai, China, May 9-13, 2011, pp. 503 - 510.
- 102.P. Liljebäck and K.Y. Pettersen, "Waypoint guidance control of snake robots", in *Proc. IEEE Conference on Robotics and Automation*, Shanghai, China, May 9-13, 2011, pp. 937 - 944.
- 103.P. Liljebäck, I.U. Haugstuen and K.Y. Pettersen, "Path following control of planar snake robots using a cascaded approach", in *Proc. IEEE Conference on Decision and Control*, Atlanta, Georgia, Dec. 2010.
- 104.P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl, "Stability analysis of snake robot locomotion based on averaging theory", in *Proc. IEEE Conference on Decision and Control*, Atlanta, Georgia, 2010.
- 105.M. Burger and K.Y. Pettersen, "Curved Trajectory Tracking for Surface Vessel Formations", in *Proc. IEEE Conference on Decision and Control*, Atlanta, Georgia, December 15-17, 2010.
- 106.P. Liljebäck, I.U. Haugstuen and K.Y. Pettersen, "Experimental investigation of a path following controller for planar snake robots", in *Proc. the 11th International Conference on Control, Automation, Robotics and Vision (ICARCV)*, 7 - 10 December 2010, Singapore.
- 107.P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl, "Experimental investigation of fundamental properties of snake robot locomotion", in *Proc. the 11th International Conference on Control, Automation, Robotics and Vision (ICARCV)*, Singapore, 7 - 10 December 2010.
- ICARCV 2010 Best Paper Award Finalist.**
- 108.P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl: "Fundamental properties of snake robot locomotion", in *Proc. 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010)*, Taipei, Taiwan, October 18-22, 2010.
- 109.P. Liljebäck, K.Y. Pettersen, Ø. Stavadahl and J.T. Gravdahl: "A simplified model of planar snake robot locomotion", in *Proc. 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2010)*, Taipei, Taiwan, October 18-22, 2010.
- 110.P.J. From, K.Y. Pettersen and J.T. Gravdahl, "Singularity-Free Dynamic Equations of Spacecraft-Manipulator Systems", in *Proc. 61st International Astronautical Congress*, Prague, Czech Republic, 2010.
- 111.A.A. Eielsen, J.T. Gravdahl, K.Y. Pettersen and L. Vogl, "Tracking Control for a Piezoelectric Nanopositioner using Estimated States and a Feedforward compensation of Hysteresis", in *Proc. 5th IFAC Symposium on Mechatronic Systems*, Cambridge, Massachusetts, USA, September 13-15 2010.
- 112.M. Burger and K.Y. Pettersen, "Smooth Transitions Between Trajectory Tracking and Path Following for Single Vehicles and Formations", in *Proc. 2nd IFAC Workshop on Distributed Estimation and Control in Networked Systems, (NecSys'10)*, Annecy, France September 13-14, 2010.
- 113.P. J. From, I. Schjøllberg, J.T. Gravdahl, K.Y. Pettersen and T.I. Fossen, "On the boundedness and skew-symmetric properties of the inertia and Coriolis matrices for vehicle-manipulator systems", in *Proc. 7th Symposium on Intelligent Autonomous Vehicles*, Lecce, Italy, September 6 – 8, 2010.

- 114.P. J. From, K. Y. Pettersen and J. T. Gravdahl, "Singularity-Free Dynamic Equations of AUV-Manipulator Systems", in *Proc. 7th Symposium on Intelligent Autonomous Vehicles*, Lecce, Italy, September 6 – 8, 2010.
- 115.M. Burger, A. Pavlov and K.Y. Pettersen, "Curved Trajectory Tracking for Surface Vessels under Constant External Disturbances", in *Proc. 7th Symposium on Intelligent Autonomous Vehicles*, Lecce, Italy, September 6 – 8, 2010.
- 116.P. Liljebäck, K.Y. Pettersen, and Ø. Stavdahl: "A snake robot with a contact force measurement system for obstacle-aided locomotion", in *Proc. 2010 IEEE International Conference on Robotics and Automation (ICRA 2010)*, Anchorage, Alaska, May 3-8, 2010.
- 117.P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl: "A hybrid model of obstacle-aided snake robot locomotion", in *Proc. 2010 IEEE International Conference on Robotics and Automation (ICRA 2010)*, Anchorage, Alaska, May 3-8, 2010.
- 118.M. Burger and K.Y. Pettersen, "Trajectory Tracking for Marine Vehicles under Constant Disturbances", in *Proc. Oceans'10*, Sydney, Australia, May 2010.
- 119.P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl: "Controllability analysis of planar snake robots influenced by viscous ground friction", in *Proc. 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2009)*, St Louis, Missouri, USA, Oct. 11-15, 2009.
- 120.P. Liljebäck, K.Y. Pettersen, Ø. Stavdahl and J.T. Gravdahl: "Stability analysis of snake robot locomotion based on Poincaré maps", in *Proc. 2009 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2009)*, St Louis, Missouri, USA, Oct. 11-15, 2009.
- 121.M. Burger, A. Pavlov and K.Y. Pettersen, "Conditional Integrators for Path Following and Formation Control of Marine Vessels under Constant Disturbances", in *Proc. 8th Conference on Manoeuvring and Control of Marine Craft, MCMC2009*, Guarujá, Brazil, Sep. 16-18, 2009.
- 122.E. Kyrkjebø and K.Y. Pettersen, "A Kinematic versus Dynamic Observer Approach to Coordination Control in terms of Estimation Principle and Practical Performance", in *Proc. European Control Conference*, Budapest, Hungary, August 23 – 26, 2009.
- 123.M. Burger, A. Pavlov, E. Børhaug and K.Y. Pettersen, "Straight Line Path Following for Formations of Underactuated Surface Vessels Under Influence of Ocean Currents", in *Proc. 2009 American Control Conference*, St. Louis, Missouri, June 10 – 12, 2009.
- 124.M. Burger, A. Pavlov and K.Y. Pettersen, "Maritime Surveillance and Monitoring using Autonomous Vehicles with Conditional Integrator-based Control", in *Proc. OCEANS'09*, Bremen, Germany, 11-14 May, 2009.
- 125.P. Liljebäck, K.Y. Pettersen and Ø. Stavdahl: "Modelling and control of obstacle-aided snake robot locomotion based on jam resolution", in *Proc. 2009 IEEE International Conference on Robotics and Automation (ICRA2009)*, Kobe, Japan, May 12 - 17, 2009, pp. 2807-3814.
- 126.P. Liljebäck, S. Fjerdings, K.Y. Pettersen and Ø. Stavdahl: "A snake robot joint mechanism with a contact force measurement system", in *Proc. 2009 IEEE International Conference on Robotics and Automation (ICRA2009)*, Kobe, Japan, May 12 - 17, 2009, pp. 3815-3820.
- 127.E. Børhaug, A. Pavlov and K.Y. Pettersen, "Integral LOS Control for Path Following of Underactuated Marine Surface Vessels in the Presence of Constant Ocean Currents", in *Proc. 47th IEEE Conference on Decision and Control*, Cancun, Mexico, Dec. 9-11, 2008, pp. 4984-4991.
- 128.C. Holden and K.Y. Pettersen, "Global Uniform Asymptotic Lyapunov Stabilization of a Vectorial Chained-Form System with a Smooth Time-Varying Control Law", in *Proc. 47th IEEE Conference on Decision and Control*, Cancun, Mexico, Dec. 9-11, 2008, pp. 640 – 645.
- 129.T.R. Krogstad, J.T. Gravdahl, E. Børhaug and K.Y. Pettersen, "AUVSAT: An experimental platform for spacecraft formation flying", in *Proc. 59th International Astronautical Congress*, Glasgow, Scotland, Sep. 29 – Oct. 3, 2008.
- 130.E. Børhaug, A. Pavlov and K.Y. Pettersen, "Straight Line Path Following for Formations of Underactuated Underwater Vehicles", in *Proc. 46th IEEE Conference on Decision and Control*, New Orleans, LA, USA, Dec. 12-14, 2007, pp. 2905 – 2912.

- 131.A. Pavlov and K.Y. Pettersen, "Stable inversion of non-minimum phase nonlinear systems: a convergent systems approach", in *Proc. 46th IEEE Conference on Decision and Control*, New Orleans, LA, USA, Dec. 12-14, 2007, pp. 3995 - 4000.
- 132.E. Kyrkjebø and K.Y. Pettersen, "Operational space synchronization of two robot manipulators through a virtual velocity estimate", in *Proc. 46th IEEE Conference on Decision and Control*, New Orleans, LA, USA, Dec. 12-14, 2007, pp. 1052 – 1057.
- 133.A. Transeth, N. van de Wouw, A. Pavlov, J.P. Hespanha and K.Y. Pettersen, "Tracking control for snake robot joints", in *Proc. 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems*, San Diego, USA, Oct. 29 – Nov. 2, 2007, pp. 3539-3546.
- 134.A. Transeth, P. Liljebäck and K.Y. Pettersen, "Snake Robot Obstacle Aided Locomotion: An experimental validation of a non-smooth modelling approach", in *Proc. 2007 IEEE/RSJ International Conference on Intelligent Robots and Systems*, San Diego, USA, Oct. 29 – Nov. 2, 2007, pp. 2582-2589.
- 135.C. Holden and K.Y. Pettersen, "Globally exponentially stabilizing control law for fully actuated rigid bodies in R^3 ", in *Proc. IFAC Conference on Control Applications in Marine Systems*, Bol, Croatia, Sep. 2007.
- 136.E. Børhaug, L. Pivano, K.Y. Pettersen and T.A. Johansen, "A model-based ocean current observer for 6DOF underwater vehicles", in *Proc. IFAC Conference on Control Applications in Marine Systems*, Bol, Croatia, Sep. 19-21, 2007.
- 137.L. Alminde, J.D. Bendtsen, J. Stoustrup and K.Y. Pettersen, "Objective directed control using local minimisation for an autonomous underwater vehicle", in *Proc. 6th IFAC Symposium on Intelligent Autonomous Vehicles*, Toulouse, France, Sep 3-5, 2007.
- 138.A. Pavlov, E. Børhaug, E. Panteley and K.Y. Pettersen, "Straight line path following for formations of underactuated surface vessels", in *Proc. IFAC Symposium on Nonlinear Control*, Pretoria, South Africa, August 22-24, 2007, pp. 654 - 659.
- 139.A. Pavlov and K.Y. Pettersen, "A new perspective on stable inversion of non-minimum phase nonlinear systems", in *Proc. IFAC Symposium on Nonlinear Control*, Pretoria, South Africa, August 22-24, 2007,
- 140.E. Kyrkjebø and K.Y. Pettersen, "Leader-Follower Output Reference State Feedback Synchronization Control of Euler-Lagrange Systems", in *Proc. 15th Mediterranean Conference on Control and Automation*, Athens, Greece, June 27-29, 2007, pp. 1 - 6.
- 141.J. Refsnes, A.J. Sørensen and K.Y. Pettersen, "A 6 DOF nonlinear observer for AUVs with experimental results", *Proc. 15th Mediterranean Conference on Control and Automation*, June 2007, Athens, Greece.
- 142.J. Refsnes, A.J. Sørensen and K.Y. Pettersen, "Output feedback control of an AUV with experimental results", *Proc. 15th Mediterranean Conference on Control and Automation*, June 2007, Athens, Greece.
- 143.A.A. Transeth, R.I. Leine, C. Glocker and K.Y. Pettersen, "Non-smooth 3D modelling of a snake robot with external obstacles", in *Proc. IEEE International Conference on Robotics and Biomimetics*, Kunming, China, December 17-20, 2006, pp. 1189-1196.
- 144.A.A. Transeth, R.I. Leine, C. Glocker and K.Y. Pettersen, "Non-smooth 3D modelling of a snake robot with frictional unilateral constraints", in *Proc. IEEE International Conference on Robotics and Biomimetics*, Kunming, China, December 17-20, 2006, pp. 1181-1188.
- 145.E. Kyrkjebø and K.Y. Pettersen, "A virtual vehicle approach to output synchronization control", in *Proc. 45th IEEE Conference on Decision and Control*, December 13-15 2006, San Diego, California, pp. 6016-6021.
- 146.E. Børhaug and K.Y. Pettersen, "Formation control of 6-DOF Euler-Lagrange systems with restricted inter-vehicle communication", in *Proc. 45th IEEE Conference on Decision and Control*, December 13-15 2006, San Diego, California, pp. 5718-5273.
- 147.E. Børhaug, A. Pavlov and K.Y. Pettersen, "Cross-track formation control of underactuated surface vessels", in *Proc. 45th IEEE Conference on Decision and Control*, December 13-15 2006, San Diego, California, pp. 5955-5961.
- 148.J. Refsnes, K. Y. Pettersen and A.J. Sørensen, "Control of slender body underactuated AUVs with current estimation", in *Proc. 45th IEEE Conference on Decision and Control*, December 13-15 2006, San Diego, California, pp. 43-50.

- 149.N. Van de Wouw, A. Pavlov, K.Y. Pettersen and H. Nijmeijer, "Output tracking control of PWA systems", in *Proc. 45th IEEE Conference on Decision and Control*, December 13-15 2006, San Diego, California, pp. 2637-2642.
- 150.A.A. Transeth and K.Y. Pettersen, "Developments in Snake Robot Modeling and Locomotion", in *Proc. International Conference on Control, Automation, Robotics and Vision*, Singapore, Dec. 5-9, 2006, pp. 1-8.
- 151.J. Refsnes, A.J. Sørensen and K.Y. Pettersen, "Robust observer design for underwater vehicles", in *Proc. IEEE Conference on Control Applications*, October 4-6 2006, Munich, Germany, pp. 313-319.
- 152.E. Kyrkjebø and K.Y. Pettersen, "Leader-Follower dynamic synchronization of surface vessels", in *Proc. 7th IFAC Conference on Manoeuvring and Control of Marine Craft*, September 20-22 2006, Lisbon, Portugal.
- 153.E. Børhaug, R. Ghabcheloo, A. Pavlov, K.Y. Pettersen, A. Pascoal and C. Silvestre, "Formation control of underactuated marine vehicles with communication constraints", in *Proc. 7th IFAC Conference on Manoeuvring and Control of Marine Craft*, September 20-22 2006, Lisbon, Portugal.
- 154.E. Børhaug and K.Y. Pettersen, "LOS path following for underactuated underwater vehicles", in *Proc. 7th IFAC Conference on Manoeuvring and Control of Marine Craft*, September 20-22 2006, Lisbon, Portugal.
- 155.J. Refsnes, K. Y. Pettersen and A.J. Sørensen, "Observer design for underwater vehicles with position and angle measurement", in *Proc. 7th IFAC Conference on Manoeuvring and Control of Marine Craft*, September 20-22 2006, Lisbon, Portugal.
- 156.J. Refsnes, A.J. Sørensen and K.Y. Pettersen, "Weather optimal dynamic positioning of underactuated AUVs using output feedback control", in *Proc. 7th IFAC Conference on Manoeuvring and Control of Marine Craft*, September 20-22 2006, Lisbon, Portugal.
- 157.E. Børhaug, K.Y.Pettersen and A. Pavlov, " An optimal guidance scheme for cross-track control of underactuated underwater vessels", in *Proc. 14th Mediterranean Conference on Control and Automation*, Ancona, June 28-30, 2006, pp. 1-8.
- 158.R. Haugom, O.K. Solbjørg, K.Y. Pettersen and T.I. Eikaas, "A Simulation game for nonlinear control theory education", in *Proc. IFAC Symposium on Advances in Control Education*, Madrid, Spain, June 21-23, 2006.
- 159.E. Børhaug and K.Y.Pettersen, "A UGAS Observer for n-DOF Euler-Lagrange Systems", in *Proc. American Control Conference*, Durham, Minneapolis, Minnesota USA, June 14-16, 2006, pp. 4031-4036. *Best Session Paper Award*.
- 160.E. Børhaug and K.Y.Pettersen, "Global Output Feedback PID Control of n-DOF Euler Lagrange Systems", in *Proc. American Control Conference*, Durham, Minneapolis, Minnesota USA, June 14-16, 2006, pp. 4993-4999.
- 161.E. Kyrkjebø and K.Y. Pettersen, "Output synchronization control for Euler-Lagrange systems with nonlinear damping terms", in *Proc. 44th IEEE Conference on Decision and Control*, Seville, Spain, Dec. 12-15, 2005, pp. 4951 - 4957.
- 162.E. Børhaug and K.Y. Pettersen, "Cross-track control for underactuated autonomous vehicles", in *Proc. 44th IEEE Conference on Decision and Control*, Seville, Spain, Dec. 12-15, 2005, pp. 602 - 608.
- 163.E. Børhaug and K.Y. Pettersen, "Adaptive way-point tracking control for underactuated autonomous vehicles", in *Proc. 44th IEEE Conference on Decision and Control*, Seville, Spain, Dec. 12-15, 2005, pp. 4028 - 4034.
- 164.A.K. Bondhus, K.Y. Pettersen and J.T. Gravdahl, "Leader/Follower synchronization of satellite attitude without angular velocity measurements", in *Proc. 44th IEEE Conference on Decision and Control*, Seville, Spain, Dec. 12-15, 2005, pp. 7270 - 7277.
- 165.J. Refsnes, A. Sørensen and K.Y. Pettersen, "Design of output-feedback control system for high speed maneuvering of an underwater vehicle" in *Proc. OCEANS 2005 Americas MTS/IEEE Conference*, Washington D.C. September 19-23, 2005, pp. 1167-1174.
- 166.A.K. Bondhus and K.Y. Pettersen, "Control of ship replenishment by output feedback synchronization", in *Proc. OCEANS 2005 Americas MTS/IEEE Conference*, Washington D.C, September 19-23, 2005, pp. 1610-1617.

- 167.E. Børhaug and K.Y. Pettersen, "Cross-track control for autonomous underwater vehicles", in *Proc. International Symposium on Unmanned Untethered Submersible Technology*, Durham, New Hampshire, USA, Aug. 21-24, 2005.
- 168.E. Kyrkjebø and K.Y. Pettersen, "Tracking from a synchronization control perspective", in *Proc. 17th IMACS World Congress*, Paris, July 2005.
- 169.P. Liljebäck, Ø. Stavadahl and K.Y. Pettersen, "Modular Pneumatic Snake Robot: 3D Modelling, Implementation and Control", in *Proc. 16th IFAC World Congress*, Prague, Czech Republic, July 2005.
- 170.A.K. Bondhus, H. Nijmeijer and K.Y. Pettersen, "Master-slave synchronization of robot manipulators: Experimental results", in *Proc. 16th IFAC World Congress*, Prague, Czech Republic, July 2005.
- 171.A.M. Rustad, A.J. Sørensen, K.Y. Pettersen and J.M. Godhavn "Motion damping control of process equipment on a floating LNG barge", in *Proc. 6th European Conference on Structural Dynamics*, Paris, France, September 2005.
- 172.E. Fredriksen and K.Y. Pettersen "Global κ -exponential way-point manoeuvring of ships", in *Proc. IEEE Conference on Decision and Control*, 2004, pp. 5360-5367.
- 173.A.K. Bondhus, K.Y. Pettersen and H. Nijmeijer, "Master-slave synchronization of robot manipulators", in *Proc. 2004 IFAC Symposium on Nonlinear Control Systems Design*, Stuttgart, Germany, September 2004, pp. 614-619.
- 174.E. Kyrkjebø, M. Wondergem, K.Y. Pettersen and H. Nijmeijer: "Experimental results on synchronization control of ship rendez-vous operations", *Proc. IFAC Conference on Control Applications in Marine System*, Ancona, Italy, 2004, pp. 453-458.
- 175.A. L. Danielsen, E. Kyrkjebø and K.Y. Pettersen, "MVT: A Marine Visualization Toolbox for MATLAB®", *Proc. IFAC Conference on Control Applications in Marine System*, Ancona, Italy, 2004, pp. 515-519.
- 176.E. Kyrkjebø and K.Y. Pettersen "Ship Replenishment using Synchronization Control", *Proc. 6th Conference on Manoeuvring and Control of Marine Crafts*, Girona, Spain, Sep. 17-19, 2003, pp. 286-291.
- 177.F. Mazenc, K.Y. Pettersen and H. Nijmeijer "Global Uniform Asymptotic Stabilization of an underactuated surface vessel", *Proc. 41st IEEE Conference on Decision and Control*, Las Vegas, Nevada, Dec. 2002, pp. 510-515.
- 178.K.Y. Pettersen and E. Lefeber "Way-point tracking control of ships", *Proc. 40th IEEE Conference on Decision and Control*, Orlando, Florida, Dec. 2001, pp. 940-945.
- 179.K.Y. Pettersen and H. Nijmeijer "Semi-Global Practical Stabilization and Disturbance Adaptation for an Underactuated Ship" *Proc. 39th IEEE Conference on Decision and Control*, Sydney, Australia, Dec. 2000.
- 180.I. Fantoni, R. Lozano, F. Mazenc and K.Y. Pettersen "Stabilization of a Nonlinear Underactuated Hovercraft", *Proc. 38th IEEE Conference on Decision and Control*, Phoenix, Arizona, Dec. 1999, pp. 2533-2538.
- 181.K.Y. Pettersen and H. Nijmeijer "Tracking Control of an Underactuated Surface Vessel" *Proc. 37th IEEE Conference on Decision and Control*, Tampa, Florida, Dec. 1998, pp. 4561-4566.
182. K.Y. Pettersen and H. Nijmeijer "Global Practical Stabilization and Tracking for an Underactuated ship - a Combined Averaging and Backstepping approach", Invited Session on Stabilization of nonlinear systems, *Proc. IFAC Conference on Systems Structure and Control*, Nantes, France, July 1998, pp. 59-64.
- 183.K.Y. Pettersen and T.I. Fossen "Underactuated Ship Stabilization using Integral Control: Experimental Results with CyberShip I" Invited Session on Underactuated Systems, *Proc. 1998 IFAC Symposium on Nonlinear Control Systems Design*, Enschede, The Netherlands, July 1998, pp. 127-132.
- 184.K.Y. Pettersen and O. Egeland "Speed Regulation of an Induction Motor using Methods from Nonholonomic Control" *Proc. 1998 American Control Conference*, Philadelphia, Pennsylvania, June 1998, pp. 2229-2230.
- 185.K.Y. Pettersen and O. Egeland "Robust Attitude Stabilization of an Underactuated AUV", *Proc. 1997 European Control Conference*, Brussels, Belgium, July 1997.

186. K.Y. Pettersen and O. Egeland "Robust Control of an Underactuated Surface Vessel with Thruster Dynamics", *Proc. 1997 American Control Conference*, Albuquerque, New Mexico, June 1997, pp. 3411-3416.
187. K.Y. Pettersen and O. Egeland "Position and Attitude Control of an Underactuated Autonomous Underwater Vehicle", *Proc. IEEE Conference on Decision and Control*, Kobe, Japan, Dec. 1996, pp. 987-991.
188. K.Y. Pettersen and O. Egeland "Exponential Stabilization of an Underactuated Surface Vessel", *Proc. IEEE Conference on Decision and Control*, Kobe, Japan, Dec. 1996, pp. 967-971.
189. K.Y. Wichlund¹, O.J. Sjørdalen and O. Egeland "Control of Vehicles with Second-Order Nonholonomic Constraints: Underactuated Vehicles" *Proc. 1995 European Control Conference*, Rome, Italy, Sep. 1995, pp. 3086-3091.
190. K.Y. Wichlund, O.J. Sjørdalen and O. Egeland "Control Properties of Underactuated Vehicles", *Proc. 1995 IEEE International Conference on Robotics and Automation*, Nagoya, Japan, May 1995, pp. 2009-2014.
191. O.J. Sjørdalen and K.Y. Wichlund, "Exponential Stabilization of a Car with n Trailers." *Proc. IEEE Conference on Decision and Control*, San Antonio, Texas, Dec. 1993, pp. 978-983.

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