

# Dr. Minas Liarokapis

SENIOR LECTURER (ASSOCIATE PROFESSOR) - DIRECTOR OF THE NEW DEXTERITY RESEARCH GROUP

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## ABOUT ME

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I am a Senior Lecturer (Associate Professor) in the Department of Mechanical Engineering at the University of Auckland (New Zealand) and director of the New Dexterity research group. Previously, I was a Postdoctoral Associate in the GRAB Lab at Yale University working with Prof. Aaron Dollar. During my postdoctoral training, my research focused on hybrid schemes that combine analytical models, constrained optimization methods and machine learning techniques to simplify robust grasping, dexterous, in-hand manipulation and haptic object identification using adaptive robot hands. During my PhD studies, I worked under the supervision of Prof. Kostas Kyriakopoulos in the Control Systems Lab and my research focused on EMG-based decoding of human motion and intention for the control of robotic and prosthetic devices in structured and dynamic environments. I am interested in equipping robots with dexterous manipulation capabilities and enabling humans to regain their lost dexterity or augment their performance, modeling, designing and controlling new robotics and bionics hardware.

## PROFESSIONAL EXPERIENCE

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### The University of Auckland

*Auckland, New Zealand*

SENIOR LECTURER / DIRECTOR OF THE NEW DEXTERITY RESEARCH GROUP

*February 2020 - Today*

Department of Mechanical Engineering

### The University of Auckland

*Auckland, New Zealand*

LECTURER / DIRECTOR OF THE NEW DEXTERITY RESEARCH GROUP

*January 2017 - January 2020*

Department of Mechanical Engineering

### Yale University

*New Haven, USA*

POSTDOCTORAL ASSOCIATE

*August 2014 - December 2016*

GRAB Lab, Department of Mechanical Engineering and Materials Science

### National Technical University of Athens

*Athens, Greece*

RESEARCH ASSOCIATE

*July 2009 - July 2014*

Control Systems Lab, School of Mechanical Engineering

## EDUCATION

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### National Technical University of Athens

*Athens, Greece*

PHD IN MECHANICAL ENGINEERING

*July 2014*

School of Mechanical Engineering

Dissertation Title: "EMG Based Interfaces for Human Robot Interaction in Structured and Dynamic Environments"

Advisor: Prof. Kostas J. Kyriakopoulos - Co-Advisor: Prof. Panagiotis K. Artemiadis (Arizona State University)

### National Kapodistrian University of Athens

*Athens, Greece*

MSc IN INFORMATION TECHNOLOGIES IN MEDICINE AND BIOLOGY

*September 2010*

Department of Informatics and Telecommunications

MSc Thesis Title: "Biosignal Analysis for Human Hand Force Reconstruction and Synergies Investigation"

Advisor: Prof. Elias S. Manolakos - Co-Advisor: Prof. Kostas J. Kyriakopoulos (National Technical University of Athens)

### University of Patras

*Patras, Greece*

DIPLOMA IN COMPUTER ENGINEERING

*September 2008*

Computer Engineering & Informatics Department

Diploma Thesis Title: "Risk Management for e-Business: Methodologies and Tools"

## HONORS & AWARDS

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2018	<b>Top Teacher Award 2018</b> , Faculty of Engineering Student's Choice	<i>Auckland, NZ</i>
2015	<b>2nd Prize (out of 900+ projects from 50+ countries)</b> , Hackaday Prize	<i>San Francisco, USA</i>
2015	<b>1st Place</b> , Robotdalen International Innovation Award	<i>Västerås, Sweden</i>
2014	<b>PhD Thesis Award</b> , NTUA Sarafis Award for PhD Thesis	<i>Athens, Greece</i>
2010-2013	<b>Publication Award</b> , Thomaidion Award for Scientific Publications	<i>Athens, Greece</i>

## PUBLICATIONS

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### Refereed Journal Articles

- [12] Che-Ming Chang, Lucas Gerez, Nathan Elangovan, Agisilaos Zisimatos, and Minas Liarokapis, "On Alternative Uses of Structural Compliance for the Development of Adaptive Robot Grippers and Hands," *Frontiers in Neurorobotics*, 2019.
- [11] Anany Dwivedi, Yongje Kwon, Andrew McDaid, and Minas Liarokapis, "A Learning Scheme for EMG Based Decoding of Dexterous, In-Hand Manipulation Motions," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 27, no. 10, pp. 2205-2215, Oct. 2019.
- [10] George Kontoudis, Minas Liarokapis, Kyriakos Vamvoudakis, and Tomonari Furukawa, "An Adaptive Actuation Mechanism for Anthropomorphic Robot Hands," *Frontiers in Robotics and AI*, vol. 6, pp. 47, 2019.
- [9] L. Gerez, J. Chen, and M. Liarokapis, "On the Development of Adaptive, Tendon-Driven, Wearable Exo-Gloves for Grasping Capabilities Enhancement," *IEEE Robotics and Automation Letters (RA-L)*, 2019, vol. 4, no. 2, pp. 422-429, April 2019.
- [8] M. Liarokapis and A. M. Dollar, "Combining Analytical Modeling and Learning to Simplify Dexterous Manipulation With Adaptive Robot Hands," *IEEE Transactions on Automation Science and Engineering (T-ASE)*, 2019, vol. 16, no. 3, pp. 1361-1372, July 2019.
- [7] V. Kostakis, K. Latoufis, M. Liarokapis, and M. Bauwens, "The convergence of digital commons with local manufacturing from a degrowth perspective: Two illustrative cases," *Journal of Cleaner Production*, vol. 197, no. 2, pp. 1684-1693, October 2018.
- [6] M. Liarokapis and A. M. Dollar, "Post-Contact, In-Hand Object Motion Compensation with Adaptive Hands," *IEEE Transactions on Automation Science and Engineering*, vol. 15, no. 2, pp. 456-467, April 2018.
- [5] M. V. Liarokapis, C. P. Bechioulis, P. K. Artemiadis and K. J. Kyriakopoulos, "Deriving Humanlike Arm Hand System Poses", *ASME Journal of Mechanisms and Robotics*, vol. 9, no. 1, January 2017.
- [4] Y. Huang, M. Bianchi, M. V. Liarokapis and Y. Sun, "Recent Datasets on Object Manipulation: A Survey", *Big Data*, vol. 4, no. 4, pp. 197-216, December 2016.
- [3] V. Kostakis, K. Latoufis, M. V. Liarokapis and M. Bauwens, "The convergence of digital commons with local manufacturing from a degrowth perspective: Two illustrative cases", *Journal of Cleaner Production*, 2016.
- [2] A. J. Spiers, M. V. Liarokapis, B. Calli and A. M. Dollar, "Single-Grasp Object Classification and Feature Extraction with Simple Robot Hands and Tactile Sensors," in *IEEE Transactions on Haptics*, vol. 9, no. 2, pp. 207-220, 2016.
- [1] M. V. Liarokapis, P. K. Artemiadis, K. J. Kyriakopoulos and E. S. Manolakas, "A Learning Scheme for Reach to Grasp Movements: On EMG-Based Interfaces Using Task Specific Motion Decoding Models," in *IEEE Journal of Biomedical and Health Informatics*, vol. 17, no. 5, pp. 915-921, Sept. 2013.

### Book Chapters

- [4] Philipp Beckerle, Steffen Willwacher, Minas Liarokapis, Matthew P Bowers, Marko B Popovic "Prosthetic Limbs." *Biomechatronics*. Academic Press, 2019.
- [3] Minas Liarokapis, Kathleen A Lamkin-Kennard, Marko B Popovic "Biomechatronics: A New Dawn." *Biomechatronics*. Academic Press, 2019.
- [2] M. V. Liarokapis, C. P. Bechioulis, G. I. Boutselis and K. J. Kyriakopoulos, "A Learn by Demonstration Approach for Closed-Loop, Robust, Anthropomorphic Grasp Planning." *Human and Robot Hands: Sensorimotor Synergies to Bridge the Gap Between Neuroscience and Robotics*. Springer International Publishing, 2016. 127-149.
- [1] M. V. Liarokapis, K. J. Kyriakopoulos, and P. K. Artemiadis. "A Learning Scheme for EMG Based Interfaces: On Task Specificity in Motion Decoding Domain." *Neuro-Robotics: From Brain Machine Interfaces to Rehabilitation Robotics*. Springer Netherlands, 2014. 3-36.

## Refereed Conference Papers

- [40] George Kontoudis, Minas Liarokapis, Kyriakos G. Vamvoudakis, "An Adaptive, Humanlike Robot Hand with Selective Interdigitation: Towards Robust Grasping and Dexterous, In-Hand Manipulation," IEEE-RAS International Conference on Humanoid Robots, Toronto, Canada, 2019.
- [39] Nathan Elangovan, Anany Dwivedi, Lucas Gerez, Che-Ming Chang, Minas Liarokapis, "Employing IMU and ArUco Marker Based Tracking to Decode the Contact Forces Exerted by Adaptive Hands," IEEE-RAS International Conference on Humanoid Robots, Toronto, Canada, 2019.
- [38] Che-Ming Chang, Lucas Gerez, Nathan Elangovan, Agisilaos Zisimatos, and Minas Liarokapis, "Unconventional Uses of Structural Compliance in Adaptive Hands," IEEE International Conference on Robot & Human Interactive Communication (ROMAN), New Delhi, India, 2019.
- [37] Anany Dwivedi, Gal Gorjup, Yongje Kwon, and Minas Liarokapis, "Combining Electromyography and Fiducial Marker Based Tracking for Intuitive Telemanipulation with a Robot Arm Hand System," IEEE International Conference on Robot & Human Interactive Communication (ROMAN), New Delhi, India, 2019.
- [36] Gal Gorjup, Anany Dwivedi, Nathan Elangovan, and Minas Liarokapis, "An Intuitive, Affordances Oriented Telemanipulation Framework for a Dual Robot Arm Hand System: On the Execution of Bimanual Tasks," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, 2019.
- [35] Andrew John McLaren, Zak Fitzgerald, Geng Gao, and Minas Liarokapis, "A Passive Closing, Tendon Driven, Adaptive Robot Hand for Ultra-Fast, Aerial Grasping and Perching," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, 2019.
- [34] Lucas Gerez, Geng Gao, and Minas Liarokapis, "Employing Magnets to Improve the Force Exertion Capabilities of Adaptive Robot Hands in Precision Grasps," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Macau, China, 2019.
- [33] L. Gerez and M. Liarokapis, "An Underactuated, Tendon-Driven, Wearable Exo-Glove With a Four-Output Differential Mechanism," 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Berlin, Germany, 2019.
- [32] G. Gao, L. Gerez, and M. Liarokapis, "Adaptive, Tendon-Driven, Affordable Prostheses for Partial Hand Amputations: On Body-powered and Motor Driven Implementations," 41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Berlin, Germany, 2019.
- [31] G. Kontoudis, M. Liarokapis, and K. Vamvoudakis, "A Compliant, Underactuated Finger for Anthropomorphic Hands," IEEE/RAS-EMBS International Conference on Rehabilitation Robotics (ICORR), Toronto, Canada, 2019.
- [30] G. Gao, A. Dwivedi, N. Elangovan, Y. Cao, L. Young, and M. Liarokapis, "The New Dexterity Adaptive, Humanlike Robot Hand," IEEE International Conference on Robotics and Automation (ICRA), 2019.
- [29] T. Bewley and M. Liarokapis, "On the Combination of Gamification and Crowd Computation in Industrial Automation and Robotics Applications," IEEE International Conference on Robotics and Automation (ICRA), 2019.
- [28] Z. Flintoff, B. Johnston, and M. Liarokapis, "Single Grasp, Model Free Object Identification using a Hyper-Adaptive Hand, Google Soli, and Tactile Sensors," 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Madrid, Spain, 2018 (accepted).
- [27] A. Dwivedi, Y. Kwon, A. J. McDaid, and M. Liarokapis, "EMG Based Decoding of Object Motion in Dexterous, In-Hand Manipulation Tasks," 7th IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics (BioRob), Enschede, Netherlands, 2018.
- [26] L. Gerez and M. Liarokapis, "A Compact Ratchet Clutch Mechanism for Fine Tendon Termination and Adjustment," IEEE International Conference on Advanced Intelligent Mechatronics, Auckland, New Zealand, 2018.
- [25] Y. Kwon, A. Dwivedi, A. J. McDaid, and M. Liarokapis, "On Muscle Selection for EMG Based Decoding of Dexterous, In-Hand Manipulation Motions," 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, 2018.
- [24] M. V. Liarokapis and A. M. Dollar, "Deriving Dexterous, In-Hand Manipulation Primitives for Adaptive Robot Hands," 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vancouver, Canada, 2017.
- [23] M. V. Liarokapis and A. M. Dollar, "Learning the Post-Contact Reconfiguration of the Hand Object System for Adaptive Grasping Mechanisms," 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Vancouver, Canada, 2017.
- [22] M. V. Liarokapis and A. M. Dollar, "Learning task-specific models for dexterous, in-hand manipulation with simple, adaptive robot hands," 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Daejeon, South Korea, 2016, pp. 2534-2541.

- [21] M. Liarokapis and A. M. Dollar, "Post-contact, in-hand object motion compensation for compliant and underactuated hands," 2016 25th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), New York, NY, USA, 2016, pp. 986-993.
- [20] M. V. Liarokapis, B. Calli, A. J. Spiers and A. M. Dollar, "Unplanned, model-free, single grasp object classification with underactuated hands and force sensors," 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hamburg, 2015, pp. 5073-5080.
- [19] C. I. Mavrogiannis, M. V. Liarokapis and K. J. Kyriakopoulos, "Quantifying anthropomorphism of robot arms," 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hamburg, 2015, pp. 4084-4089.
- [18] G. P. Kontoudis, M. V. Liarokapis, A. G. Zisimatos, C. I. Mavrogiannis and K. J. Kyriakopoulos, "Open-source, anthropomorphic, underactuated robot hands with a selectively lockable differential mechanism: Towards affordable prostheses," 2015 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Hamburg, 2015, pp. 5857-5862.
- [17] M. V. Liarokapis, A. M. Dollar and K. J. Kyriakopoulos, "Humanlike, task-specific reaching and grasping with redundant arms and low-complexity hands," 2015 International Conference on Advanced Robotics (ICAR), Istanbul, 2015, pp. 490-497.
- [16] A. G. Zisimatos, M. V. Liarokapis, C. I. Mavrogiannis and K. J. Kyriakopoulos, "Open-source, affordable, modular, light-weight, underactuated robot hands," 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, 2014, pp. 3207-3212.
- [15] G. I. Boutselis, C. P. Bechlioulis, M. V. Liarokapis and K. J. Kyriakopoulos, "Task specific robust grasping for multifingered robot hands," 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, 2014, pp. 858-863.
- [14] C. P. Bechlioulis, M. V. Liarokapis and K. J. Kyriakopoulos, "Robust model free control of robotic manipulators with prescribed transient and steady state performance," 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, 2014, pp. 41-46.
- [13] S. Heshmati-alamdari, C. P. Bechlioulis, M. V. Liarokapis and K. J. Kyriakopoulos, "Prescribed performance image based visual servoing under field of view constraints," 2014 IEEE/RSJ International Conference on Intelligent Robots and Systems, Chicago, IL, 2014, pp. 2721-2726.
- [12] M. V. Liarokapis, A. G. Zisimatos, M. N. Bousiou and K. J. Kyriakopoulos, "Open-source, low-cost, compliant, modular, underactuated fingers: Towards affordable prostheses for partial hand amputations," 2014 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Chicago, IL, 2014, pp. 2541-2544.
- [11] C. I. Mavrogiannis, C. P. Bechlioulis, M. V. Liarokapis and K. J. Kyriakopoulos, "Task-specific grasp selection for underactuated hands," 2014 IEEE International Conference on Robotics and Automation (ICRA), Hong Kong, 2014, pp. 3676-3681.
- [10] G. I. Boutselis, C. P. Bechlioulis, M. V. Liarokapis and K. J. Kyriakopoulos, "An integrated approach towards robust grasping with tactile sensing," 2014 IEEE International Conference on Robotics and Automation (ICRA), Hong Kong, 2014, pp. 3682-3687.
- [9] M. V. Liarokapis, P. K. Artemiadis and K. J. Kyriakopoulos, "Mapping human to robot motion with functional anthropomorphism for teleoperation and telemanipulation with robot arm hand systems," 2013 IEEE/RSJ International Conference on Intelligent Robots and Systems, Tokyo, 2013, pp. 2075-2075.
- [8] M. V. Liarokapis, P. K. Artemiadis and K. J. Kyriakopoulos, "Telemanipulation with the DLR/HIT II robot hand using a dataglove and a low cost force feedback device," 21st Mediterranean Conference on Control and Automation, Chania, 2013, pp. 431-436.
- [7] M. V. Liarokapis, P. K. Artemiadis and K. J. Kyriakopoulos, "Task discrimination from myoelectric activity: A learning scheme for EMG-based interfaces," 2013 IEEE 13th International Conference on Rehabilitation Robotics (ICORR), Seattle, WA, 2013, pp. 1-6.
- [6] M. V. Liarokapis, P. K. Artemiadis and K. J. Kyriakopoulos, "Quantifying anthropomorphism of robot hands," 2013 IEEE International Conference on Robotics and Automation, Karlsruhe, 2013, pp. 2041-2046.
- [5] M. V. Liarokapis, P. K. Artemiadis and K. J. Kyriakopoulos, "Functional Anthropomorphism for human to robot motion mapping," 2012 IEEE RO-MAN: The 21st IEEE International Symposium on Robot and Human Interactive Communication, Paris, 2012, pp. 31-36.
- [4] M. V. Liarokapis, P. K. Artemiadis, P. T. Katsiaris and K. J. Kyriakopoulos, "Learning task-specific models for reach to grasp movements: Towards EMG-based teleoperation of robotic arm-hand systems," 2012 4th IEEE RAS & EMBS International Conference on Biomedical Robotics and Biomechatronics (BioRob), Rome, 2012, pp. 1287-1292.
- [3] M. V. Liarokapis, P. K. Artemiadis, P. T. Katsiaris, K. J. Kyriakopoulos and E. S. Manolakas, "Learning human reach-to-grasp strategies: Towards EMG-based control of robotic arm-hand systems," 2012 IEEE International Conference on Robotics and Automation, Saint Paul, MN, 2012, pp. 2287-2292.

[2] P. K. Artemiadis, P. T. Katsiaris, M. V. Liarokapis and K. J. Kyriakopoulos, "On the effect of human arm manipulability in 3D force tasks: Towards force-controlled exoskeletons," 2011 IEEE International Conference on Robotics and Automation, Shanghai, 2011, pp. 3784-3789.

[1] P. K. Artemiadis, P. T. Katsiaris, M. V. Liarokapis and K. J. Kyriakopoulos, "Human arm impedance: Characterization and modeling in 3D space," 2010 IEEE/RSJ International Conference on Intelligent Robots and Systems, Taipei, 2010, pp. 3103-3108.

## Technical Reports

[3] G. P. Kontoudis, M. V. Liarokapis, A. G. Zisimatos, C. I. Mavrogiannis, and K. J. Kyriakopoulos, "How to Create Affordable, Anthropomorphic, Personalized, Light-Weight Prosthetic Hands", Control Systems Lab, School of Mechanical Engineering, National Technical University of Athens, October 2015.

[2] A. G. Zisimatos, M. V. Liarokapis, C. I. Mavrogiannis, G. P. Kontoudis and K. J. Kyriakopoulos, "How to Create Affordable, Modular, Light-Weight, Underactuated, Compliant Robot Hands", Control Systems Lab, School of Mechanical Engineering, National Technical University of Athens, January 2015.

[1] M. V. Liarokapis, P. K. Artemiadis, C. P. Bechlioulis and K. J. Kyriakopoulos, "Directions, Methods and Metrics for Mapping Human to Robot Motion with Functional Anthropomorphism: A Review", Control Systems Lab, School of Mechanical Engineering, National Technical University of Athens, September 2013.

## Conference and Workshop Abstracts and Posters

[2] M. V. Liarokapis, A. G. Zisimatos, C. I. Mavrogiannis and K. J. Kyriakopoulos, "OpenBionics: An Open-Source Initiative for the Creation of Affordable, Modular, Light-Weight, Underactuated Robot Hands and Prosthetic Devices", 2nd ASU Rehabilitation Robotics Workshop - Arizona State University (ASU), Tempe, AZ, 2014.

[1] M. Bianchi and M. V. Liarokapis, "HandCorpus, a New Open-Access Repository for Sharing Experimental Data and Results on Human and Artificial Hands", IEEE World Haptics Conference (WHC), Daejeon, 2013.

## RESEARCH FUNDING

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My research is currently funded by:

- European, Japanese, and US partners in Industry through R&D contracts
- The University of Auckland - Faculty Research Development Funding
- The University of Auckland - Centre for Automation and Robotic Engineering Science

In total, I have generated grants totalling >\$859,000 as principal investigator (PI) and I have participated in grants totalling >\$275,000 as an associate investigator (AI).

## SERVICE ACTIVITIES

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### Associate Editor

2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

2019 IEEE International Conference on Robotics and Automation (ICRA)

2018 IEEE International Conference on Robotics and Automation (ICRA)

2018 IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics

### Chair/Co-Chair, International Conferences

Co-Chair of "Wearable Robotic Systems - Orthotics", 27 July, 2019, 41st Annual International Conference of the IEEE Engineering in Medicine & Biology Society

Co-Chair of "Wearable Robotic Systems - Prosthetics", 27 July, 2019, 41st Annual International Conference of the IEEE Engineering in Medicine & Biology Society

Chair of "Artificial Intelligence and Machine Learning", 10 July, 2018, IEEEASME International Conference on Advanced Intelligent Mechatronics

Co-Chair of "New Frontiers in Biomechanics: From Brain Machine Interfaces to Assistive and Rehabilitation Robotics", 9 July 2018, IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM)

Chair of "Grasping I" session, 25 Sep 2017, IEEE/RSJ International Conference on Intelligent Robots and Systems

Chair of "Grasping II" session, 25 Sep 2017, IEEE/RSJ International Conference on Intelligent Robots and Systems

Chair of "Manipulation" session, 30 July 2015, International Conference on Advanced Robotics

## Reviewer, Research Funding Agencies

National Science Foundation (NSF)

## Reviewer, International Journals

Sage Journals, The International Journal of Robotics Research  
IEEE, Transactions on Robotics  
IEEE, Robotics and Automation Magazine  
IEEE, Robotics and Automation Letters  
IEEE, Transactions on Mechatronics  
IEEE, Transactions on Cybernetics  
IEEE, Transactions on Biomedical Engineering  
IEEE, Transactions on Industrial Electronics  
IEEE, Transactions on Automation Science and Engineering  
IEEE, Transactions on Neural Systems and Rehabilitation Engineering  
IEEE, Transactions on Systems, Man and Cybernetics: Systems  
IEEE, Journal of Biomedical and Health Informatics  
Springer, Journal of Intelligent and Robotic Systems  
Cambridge University Press, Robotica  
ASME, Journal of Dynamic Systems, Measurement, and Control  
ASME, Journal of Mechanisms and Robotics  
Frontiers in, Bioengineering and Biotechnology  
Frontiers in, NeuroRobotics  
Elsevier, Robotics and Computer Integrated Manufacturing  
Elsevier, The Surgeon

## Reviewer, International Conferences

IEEE International Symposium on Robot and Human Interactive Communication (Ro-Man)  
IEEE International Conference on Robotics and Automation (ICRA)  
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)  
IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob)  
IEEE International Conference on Rehabilitation Robotics (ICORR)  
IEEE Mediterranean Conference on Control & Automation (MED)  
IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)  
IEEE Workshop on Signal Processing Systems (SIPS)  
IEEE World Haptics  
Robotics Science and Systems

## INITIATIVES

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### OpenBionics

[www.openbionics.org](http://www.openbionics.org)

RESEARCH ADVISOR / FOUNDER

*July 2013 - Today*

- OpenBionics is an open-source initiative that focuses on the development of affordable, adaptive robotic and prosthetic devices.

### OpenRobotHardware

[www.openrobothardware.org](http://www.openrobothardware.org)

CO-FOUNDER / TECHNICAL COORDINATOR

*August 2014 - Today*

- OpenRobotHardware is intended to serve as a resource for efforts focusing on open-source mechanical and electrical hardware, with a particular focus on projects that may be useful in robotics applications, robotics research and education.

### HandCorpus

[www.handcorpus.org](http://www.handcorpus.org)

CO-FOUNDER / TECHNICAL COORDINATOR

*February 2011 - Today*

- HandCorpus is a repository where everyone can freely share and search for different kinds of experimental data, about human and robotic hands. It is sponsored and supported by many important European Projects and research groups.

## TEACHING EXPERIENCE

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### The University of Auckland

Auckland, New Zealand

#### DEPARTMENT OF MECHANICAL ENGINEERING

##### **MECHENG 201: Electronics and Computing for Mechanical Engineers (2017)**

*Role:* Lecturer

*Description:* Mechanical engineers need to be familiar with those electronics and software elements that are now vital components of most mechanical products and processes. Introduces sensors and actuators, analogue and digital circuit elements for signal processing, and computing and software programming.

##### **MECHENG 736: Biomechatronic Systems (2017-Today)**

*Role:* Course Director - Course Coordinator - Lecturer

*Description:* Explores mechatronic principles and techniques for measuring and manipulating biological systems. Learning objectives include human biomechanics and motion control, advanced serial and parallel robots, compliant soft robots, software and functional safety, human robot interaction and force control, novel sensors and actuators, and biomechatronics design principles.

##### **MECHENG 201: Introduction to Mechatronics (2018-Today)**

*Role:* Course Director - Lecturer

*Description:* Introduces mechatronics to mechanical and mechatronics engineers. Covers sensors and actuators, analogue and digital circuit elements for signal processing and programming.

##### **MECHENG 700 A/B: Part IV (Final Year) Research Project (2019-Today)**

*Role:* Course Coordinator

*Description:* The Part IV Research Project provides an opportunity for students to work largely on their own initiative (but under constant supervision), on a topic of interest for Mechanical and Mechatronics Engineers. The research project counts as two courses (a total of 30 points), one in each semester. Work takes place over a complete academic year, requiring you to enroll in both MECHENG 700A and 700B courses (for both Mechanical and Mechatronics students). Although you will be working in groups of two under the direction and continuing guidance of a project supervisor, the research project requires independent thought and action. We hope that you will feel a personal sense of achievement by the end of the academic year. The project can also be seen within a professional context where you, as an engineer, have to investigate a particular problem in some depth and produce both an analysis of the problem and its solution. The basis of the solution must include a formal report, a conference presentation and an industrial display. Some projects focus primarily on laboratory work and can involve substantial liaison with local industry, while others may be more analytical or computational. It must be noted that individual grades are awarded for this research project.

### National Technical University of Athens

Athens, Greece

#### SCHOOL OF MECHANICAL ENGINEERING

July 2009 – July 2014

Teaching assistant for undergraduate level courses on: Robotics, Micro-Controllers and Digital Control, Industrial Electronics and Control Systems.

## STUDENT SUPERVISION

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### The University of Auckland

#### PhD Students

Nathan Elangovan, PhD Candidate (2017 – Today)

Dept. of Mechanical Engineering

Yongje Kwon, PhD Candidate (2017 – Today)

Dept. of Mechanical Engineering

Anany Dwivedi, PhD Candidate (2017 – Today)

Dept. of Mechanical Engineering

Lucas Gerez, PhD Candidate (2017 – Today)

Dept. of Mechanical Engineering

Che-Ming Chang, PhD Candidate (2018 – Today)

Dept. of Mechanical Engineering

Geng Gao, PhD Candidate (2018 – Today)

Dept. of Mechanical Engineering

Gal Gorjup, PhD Candidate (2018 – Today)

Dept. of Mechanical Engineering

Mojtaba Shahmohammadi, PhD Candidate (2018 – Today)  
Dept. of Mechanical Engineering

Jiawei Meng, PhD Candidate (2019 – Today)  
Dept. of Mechanical Engineering

Jayden Chapman, PhD Candidate (2019 – Today)  
Dept. of Mechanical Engineering

I have also supervised 3 ME students, 9 MEngSt students, 32 undergraduate students, and 5 interns.

More information can be found at:

[www.newdexterity.org](http://www.newdexterity.org)

## **Yale University**

Bryan Duerfeldt, Undergraduate Student (June 2015 – May 2016)  
Dept. of Mechanical Engineering and Materials Science

## **National Technical University of Athens**

George Kontoudis, Undergraduate Student (February 2014 – April 2016)  
Control Systems Lab - School of Mechanical Engineering  
Current Position: PhD Student, Virginia Tech

Agisilaos Zisimatos, Undergraduate Student (May 2013 – September 2015)  
Control Systems Lab - School of Electrical and Computer Engineering  
Current Position: Research Engineer, SatNogs / UPSat / Libre Space Foundation

George Boutselis, Undergraduate Student (March 2012 – February 2014)  
Control Systems Lab - School of Mechanical Engineering  
Current Position: PhD Student, Georgia Institute of Technology

Christoforos Mavrogiannis, Undergraduate Student (March 2011 – September 2013)  
Control Systems Lab - School of Mechanical Engineering  
Current Position: PhD Candidate, Cornell University

## **PROFESSIONAL MEMBERSHIPS**

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Member, ASME (American Society of Mechanical Engineers) | (2015 - Today)

Member, IEEE (Institute of Electrical and Electronics Engineers) | (2010 - Today)

Member, IEEE Robotics and Automation Society | (2010 - Today)

Member, Technical Chamber of Greece | (2008 - Today)

## **PROFESSIONAL CERTIFICATES**

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### **Stanford University**

*Palo Alto, CA, USA*

#### **ADVANCED PROJECT MANAGEMENT CERTIFICATE**

*2009*

Courses: Leading Effective Teams, Leadership for Strategic Execution, Converting Strategy into Action, Project Management Mastery, Mastering the Integrated Program, Project Risk Management.