

Thrishantha Nanayakkara

Professor of Robotics, Director of Morphlab

RESEARCH EXCELLENCE

I have published more than 150 papers (Google H-index of 30, 3133 total citations) in flagship robotics conferences and journals including IEEE transactions on robotics/IJRR (5 papers), IEEE Robotics and Automation Letters (10 papers), PloS One (6 papers), IROS (13 papers), ICRA (15 papers), and other publications such as Journal of Advanced Robotics, IEEE Transactions on Haptics, IEEE Sensors, IEEE Humanoids, and RoboSoft. My publications are co-authored by colleagues from MIT, Harvard, Johns Hopkins, UC Sanata Barbara (from USA), Ritsumeikan University, Kyushu University (from Japan), University of Melbourne (Australia), IIT, Scuola Superiore St Anna, University of Carlos III Madrid, Cambridge, Bristol, and Queen Mary (EU and UK). I have worked at leading laboratories for robotics and neuromotor control, including the Laboratory for Computational Motor Control, Johns Hopkins University, MIT Computer Science and Artificial Intelligence Lab (CSAIL), and Harvard Neuromotor Control Lab. I have been a PI on EPSRC and EU funded projects of more than £5 million that have pushed the boundaries of our understanding on how conditioning the body improves the efficacy of action and perception in human-human and human-robot interactions.

STRATEGIC VISION

My long-term scientific quest has been to bridge the gulf of ability between robots and humans to manage physical contact tasks. Despite many advances in symbolic Artificial Intelligence (AI) like deep neural networks and control theory in the past decade, robots still find it difficult to demonstrate the level of smoothness and robustness in contact tasks like safely holding living beings (i.e. A hamster), object handover, and physical palpation to identify a tissue condition of a patient. I believe that some of the missing fundamentals are in the way the brain conditions the body to improve perception and robustness of movement and force control in such contact tasks. My research, therefore, takes a robotics approach to test hypotheses about the computational nature of embodied problem solving.

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EDUCATION

- Sept, 1998 – **PhD in Systems Control and Robotics**, *Department of Mechanical Engineering*,
Aug, 2001 Saga University, Saga, Japan.
- Sept, 1996 – **MSc in Electrical Engineering**, *Department of Electrical Engineering*, Saga Uni-
Aug, 1998 versity, Saga, Japan.
- April, 1992 – **BSc in Electrical Engineering, 1st class honors**, *Department of Electrical Engi-
Aug, 1996 neering*, University of Moratuwa, Moratuwa, Sri Lanka.

WORK EXPERIENCE

- From Sept, **Professor of Robotics**, *Dyson School of Design Engineering*, **Imperial College**
2021 **London**, United Kingdom.
- Jan, 2017 – **Reader**, *Dyson School of Design Engineering*, **Imperial College London**, United
Sept, 2021 Kingdom.
- Sept, 2009 – **Senior Lecturer**, *Department of Informatics*, **King's College London**, United
Dec, 2016 Kingdom.
- July, 2007 – **Postdoctoral research fellow**, *School of Engineering and Applied Sciences*, **Har-**
Jan, 2008 **vard University**, Cambridge, MA, United States.
- Feb, 2008 – **Research Affiliate**, *Computer Science and Artificial Intelligence Lab*, **MIT**, Cam-
June, 2009 bridge, MA, United States.
- Sept, 2008 – **Radcliffe Fellow**, *Radcliffe Institute for Advanced Studies*, **Harvard University**,
June, 2009 Cambridge, MA, United States.
- Aug, 2003 – **Senior lecturer**, *Department of Mechanical Engineering*, **University of Moratuwa**,
June, 2008 Moratuwa, Sri Lanka.
- Nov, 2001 – **Postdoctoral Fellow**, *Department of Biomedical Engineering, School of Medicine*,
July, 2003 **Johns Hopkins University**, Baltimore, MD, United States.

LEADERSHIP ROLES

- 2021 **Member, Internal Research Board, DigiFab Institute**, Imperial College London.
UK
- 2020 **Speaker of the Imperial Robotics Forum**, *The forum consists of 44 principal
investigators across the faculty of engineering*, Imperial College London.
UK
- 2019 **Industry engagement chair**, *UK RAS Strategic Task Group for Soft Robotics*,
UK.
- 2017 **Director**, *Morphlab*, Imperial College London, UK.
- 2020 **Director**, *Permi sensing*, an IoT spin-off company from Imperial College London,
UK.

AWARDS AND HONORS

- 2018 **Chartered Engineer**, IET, UK.

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- 2018 **Excellence in Teaching Innovation**, "*Gender and Culture in Robotics Education*", Imperial College London, UK.
- 2016 **IEEE senior member**, IEEE, USA.
- 2016 **Finalist for the most innovative teacher award**, King's College London, UK.
- 2015 **Ingenious award**, *Royal Academy of Engineers*, UK.
- 2015 **Radcliffe Exploratory Seminar leader**, *Radcliffe Institute*, Harvard University, USA.
- 2012 **Best paper award**, co-author of the paper titled "*Passive Dynamics of High Frequency Bat Wing Flapping with an Anisotropic Membrane*", *IEEE International Conference on Information and Automation for Sustainability*, ICIAfS - 2014, September 16-19, Colombo, Sri Lanka.
- 2013 **Finalist, IEEE Franklin Taylor Best Paper award**, co-author of the paper titled "*An Optimal State Dependent Haptic Guidance Controller Via a Hard Rein*", *IEEE International Conference on Systems man and cybernetics*, SMC-2013, October, Manchester, UK.
- 2012 **Best paper award**, co-author of the paper titled "*A Computationally Efficient Framework for Stochastic Prediction of Flood Propagation*", *IEEE International Conference on Information and Automation for Sustainability*, ICIAfS - 2012, September 27-29, Beijing, China.
- 2012 **Finalist, 2012 Royal Academy of Engineering ERA Foundation Entrepreneurs Award**, Royal Academy of Engineering, London, UK.
- 2008 **Radcliffe Fellowship**, Harvard University, Cambridge, USA.
- description This fellowship was awarded by nomination by faculty members of the Harvard University based on the individual's academic merit and potential to serve pressing needs of the society

RESEARCH GRANTS

- Title Natural Intelligence
- January, 2021- , December 2023 **EU H2020 grant**, 101016970, PI at Imperial College London, consortium consists of 6 EU partners coordinated by University of Pisa, Italy, (Total: Euro 3 million, ICL amount: Euro 587k), EU.
- Title RoboPatient - Robot Assisted Learning of Constrained Haptic Information Gain
- July, 2019- , March 2023 **EPSRC standard grant**, EP/T00603X/1, PI and coordinator of the consortium consisting of Imperial College London, Cambridge University, and Oxford University, (Total: £1.6 million, ICL amount: £1.07 million), UK.
- Title Final user centred design iteration of a portable red palm weevil detection sensor
- Feb, 2018- Feb, 2019 **EPSRC Late Stage Impact Acceleration Grant**, EP/R511547/1, (Total: £36k), UK.
- Title MOTION - Morphological Computation of Perception and Action
- July, 2016- June, 2019 **EPSRC standard grant**, EP/N03211X/1, PI and coordinator of the consortium consisting of Cambridge University, Imperial College London, and University of Surrey, (Total: £1.2 million, ICL amount: £400k), UK.

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Title Four by Three

Dec, 2014 - **European Union H2020 grant**, 637095, Co-Investigator, (KCL amount: £500k),
Nov, 2017 UK.

Jan, **European Union FP7 Call-7 grant**, Award ref: 287728, Co-Investigator, technical
2012-Dec, manager of the consortium, (KCL amount (coordinator): 1.3m, total consortium
2015 grant: 7.38m), UK.

Title STIFF-FLOP - STIFFness controllable Flexible and Learn-able Manipulator for surgical
OPerations

March, 2011 - **EPSRC first grant**, EP/I028773/1, Principal Investigator, (amount: £97k), UK.
Sept, 2012

Title Impedance control on uncertain objects

April, 2011 - **EPSRC standard grant**, EP/I028765/1, Co-Investigator in collaboration with
Sept, 2014 Sheffield Hallam University, (amount: £200k), UK.

Title REINS: Human robot interaction through reins

March, **European Union FP7 Call-6 grant**, 270436, Co-Investigator, (amount: £535k),
2011-Dec, UK.
2014

Title TOMSY-Topological Motion Synthesis for Dexterous Manipulation

March, **European Union FP7 Call-6 grant**, 270138, Principal Investigator, (amount:
2011-Dec, 480k), UK.
2014

Title DARWIN-Dextrous Assembler Robot Working with embodied INtelligence

EDITORIAL BOARDS

2021 **Editorial board member**, *Scientific Reports*, Nature Publishing Group.

2020 **Special Issue Editor**, *International Journal of Robotics Research (IJRR)*: Special
issue based on accepted papers in RSS 2020.

2020 **Special Issue Editor**, *Frontiers Soft Robotics*: Special issue on rising stars in soft
robotics.

2020 **One of the four editorial board members**, *Frontiers special issue on Current
Advances in Soft Robotics: Best Papers from RoboSoft 2018*.

2019-2023 **One of the five Program Chairs**, *Flagship IEEE International Conference of
Robotics and Automation (ICRA) 2023 to be held in London*, IEEE, USA.

2019 onwards **Associate Editor**, *IEEE Robotics and Automation Letters (RAL journal)*, IEEE,
USA.

2018 onwards **Regional chair**, *Robotics: Science and Systems (RSS)*, IEEE, USA.

2016 onwards **Associate editor**, *IEEE International Conference on Robotics and Automation
(ICRA)*, IEEE, USA.

2016 onwards **Associate editor**, *IEEE International Conference on Intelligent Robotics and Sys-
tems (IROS)*, IEEE, USA.

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- 2018 onwards **Associate editor/publications chair**, *IEEE International Conference on Soft Robotics (RoboSoft)*, IEEE, USA.
- 2015 onwards **Associate editor**, *Frontiers Soft Robotics Specialty*, editor in chief: Prof. Cecilia Laschi, Frontiers, Switzerland.
- 2016 onwards **Associate editor**, *Journal of Robotics and Mechatronics*, editor in chief: Prof. Yoshihiro Takita (National Defence Academy of Japan), JRM, Japan.
- 2005 onwards **Associate editor**, *Journal of Control and Intelligent Systems*, editor in chief: Prof. Clarence de Silva, ACTA Press, Canada.
- 2010 onwards **Program Chair**, *IEEE International Conference on Information and Automation for Sustainability*, Sri Lanka, Australia, China.
- 2005 **Founding General Chair**, *International Conference on Information and Automation for Sustainability*, with IEEE technical co-sponsorship, Sri Lanka, Australia, China.
- 2012 **Program committee**, *2012 IEEE/SICE International Conference on System Integration (SII2012)*, December 16-18, 2012, Fukuoka, Japan.

EXTERNAL REVIEW PANELS

- 2010 onwards **PhD thesis viva panels, UK**, *King's College London, Queen Mary London, Imperial College London, University of Manchester, Sheffield Hallam University, Bristol University*, UK.
- 2010 onwards **PhD thesis viva panels, outside UK**, *University of Melbourne, Deakin, University of Technology Sydney (Australia), EPFL (Switzerland), University of Carlos III Madrid (Spain)*.
- 2010 onwards **Research grant reviewer**, for *DAAD (Germany), NSF (Switzerland), NSF (Sri Lanka)*.
- 2012 **EPSRC college of peer reviewers**, From Sept. 2012, UK.

INTERNATIONAL NEWS AND FEATURE ARTICLES

- September 2019 **The Engineer Magazine**, *RoboPatient combines AR and robotics to train medics*, UK.
- 05/01/2017 **Canada Global TV**, *Interviewed by Canada Global TV – "European Parliament votes on robotic rights"*, Canada.
- 24/06/2017 **BBC Radio-4**, *Panel member of a 30 minute programme titled "Bottom Line" together with a partner in McKenzie Consultancy and CEO of Yotel chain about robotics in the future society*, UK.
- 05/07/2016 **Financial Times**, *Interviewed by Financial Times – "My colleague, the robot"*, UK.
- October issue, 2012 **IEEE Spectrum magazine**, *Robotics news on Inflatable Limb Robot Runs Around on Wiggly Legs*, USA.
- September issue, 2008 **Harvard Magazine**, *On animal-robot interaction studies*, USA.
- Issue 2653, 26th April 2008 **New Scientist Magazine**, *On legged robots and animal odor localization*, UK.

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KEYNOTES/INVITED TALKS

- 25/09/2021 **IEEE IAS GUCON 2021**, *Keynote speech titled A soft robotics approach to understand how the brain conditions the body to make realtime computation more efficient*, Online Conference.
- 17/09/2021 **International Workshop on Bionic Engineering 2021**, *Keynote speech titled A Soft Robotic Approach to Understand Embodied Intelligence*, Online workshop.
- 28/06/2021 **UK RAS Strategic Task Group for Soft Robotics-Industry Collaboration Workshop**, *Invited talk titled The Robo Patient*, Online workshop.
- 25/03/2021 **International workshop on Embodied Intelligence**, *Invited talk titled The brain is smarter than what we think it is – it organises the body to do things it is lazy to do*, Zoom workshop.
- 10/12/2020 **IEEE International Conference on Advancements in Computing (ICAC 2020)**, *Opening keynote speech titled Embodied Computation for Realtime Interaction with the Natural World*, Colombo, Sri Lanka.
- 06/09/2020 **Eurohaptics 2020 -Workshop on "Active haptic humans and robots (THUMB): Artificial haptic systems"**, *Workshop keynote talk titled Conditioning the body to reduce entropy of haptic perception*, Amsterdam.
- 03/09/2020 **5th European COST Conference on Artificial Intelligence in Finance and Industry**, *Plenary talk titled Shared computation between the brain and the body*.
- 24/07/2020 **Guest in IEEE RAS Soft Robotics Podcast**, *Interview on soft robotics and morphological computation*.
- 13/07/2020 **First IEEE RAS debate on Soft Robotics, Control Theory, and Morphological Computation**, *One of the 5 panellists*.
- 13/07/2020 **First IEEE RAS Soft Robotics Debate on Soft Robotics, control theory, and morphological computation**, *One of the 5 Panelists*, <http://softrobotics.org/soft-robotics-debates/>.
- 23/03/2020 **Workshop: Human-Robot Medical Interaction as part of the IEEE International Conference on Human Robot Interaction**, *Plenary talk titled Constrained haptic information gain during physical examination in primary care*.
- 23/09/2019 **UK/US Bio-inspired Unmanned Autonomous Systems (BioUAS)**, *Plenary talk titled "The brain is lazy" highlighting the clever ways it takes to condition the body to simplify autonomous control*, London, UK.
- 27/06/2019 **Robotics Science and Systems (RSS) 2019**, *Plenary workshop talk on "Embodied computation of perception and action for fast uncertainty reduction"*, Freiburg, Germany.
- 14/04/2019 **IEEE RoboSoft 2019**, *Plenary workshop talk at IEEE RoboSoft 2019 on "Towards the nature of information processing in soft machines"*, Seoul, South Korea.
- 14/04/2019 **IEEE RoboSoft 2019**, *Workshop organizer and workshop talk at IEEE RoboSoft 2019 on "Morphological Computation Through Physical Adaptation of Soft Robots"*, Seoul, South Korea.
- 24/04/2018 **IEEE RoboSoft 2018**, *Plenary workshop talk at IEEE RoboSoft 2018 on "Haptic information gain in the impedance domain"*, Levorno, Italy.

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- 23/05/2018 **IEEE ICRA2018**, Plenary workshop talk at IEEE ICRA2018 on "Brain is the last resort", Brisbane, Australia.
- 27/05/2018 **IEEE ICRA2018**, Invited workshop talk at IEEE ICRA2018 on "Active search for haptic information in the impedance domain", Brisbane, Australia.
- 02/05/2018 **University of Leeds**, Keynote on "Surviving in an uncertain world with slow communication pathways", Leeds, UK.
- 04/10/2018 **RCGP-2018**, Workshop keynote speech at Royal College of General Practitioners annual conference on "Soft Robotic Patients for Medical Education", Glasgow, UK.
- 17/08/2018 **Xuzhuo Central Hospital**, Keynote speech at Xuzhou Central Hospital on "Soft Robotics for Rehabilitation", Xuzhou, China.
- 23/08/2018 **Jilin University**, Keynote speech at International Workshop on Bioinspiration on "Morphological computation - The role of the physical circuits in the body in the computation of perception and action", Jilin, China.
- 11/10/2017 **IEEE PIMRC**, Plenary keynote at IEEE PIMRC on "Survival in uncertain environments with slow communication pathways – evidence from morphological computation", Montreal, Canada.
- 12/12/2017 **IMechE Christmas event**, Keynote at IMechE Christmas event – "Tinkering" on "If robots were to survive like living beings in uncertain environments", London, UK.
- 18/12/2017 **LIPI workshop**, Keynote at Indonesia Institute of Science and technology on "Soft robotics for sustainable rainforest communities", Bandung, Indonesia.
- 10/07/2017 **2nd UK manipulation workshop**, Invited talk on "Surviving with slow communication pathways", London, UK.
- 23/03/2017 **ERU-2017**, Co-organizer and speaker in the Workshop on "Haptics for Healthcare", Edinburgh, UK.
- 05/07/2017 **University of Cambridge**, Invited talk at University of Cambridge on "Soft robotics and morphological computation", Cambridge, UK.

PHD STUDENT GRADUATIONS IN UK

- 2021 **Dr. Liang He**, Subsequently Postdoctoral Research Fellow in Robotics, Robotics Institute, Oxford University, UK.
- 2020 **Dr. Saina Akhond**, Subsequently Postdoctoral Research Fellow in Surgical Robotics, St. Mary's Hospital, Imperial College, UK.
- 2019 **Dr. Sara Adela Abad Guaman**, Subsequently Postdoctoral Research Fellow in Soft Robotics and Haptics, UCL, UK.
- 2018 **Dr. S.M.Hadi Sadati**, Subsequently Postdoctoral Research Associate in Robotic System Engineering, King's College London, UK.
- 2018 **Dr. Ali Shiva**, Subsequently Postdoctoral Researcher, Ferdowsi University of Mashhad-FUM, Iran.
- 2016 **Dr. Nantachai Sornkarn**, Subsequently Director of Technical Development, Mawin Plastics, Thailand.

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- 2016 **Dr. Jelizaveta Konstantinova**, *Subsequently Research Coordinator*, Ocado Technology, UK.
- 2015 **Dr. Giuseppe Cotugno**, *Subsequently Robotics Team Leader*, Ocado Technology, UK.
- 2015 **Dr. Anuradha Ranasinghe**, *Subsequently Lecturer in Robotics*, Liverpool Hope University, UK.
- 2014 **Dr. Allen Jiang**, *Subsequently Technical Program Manager*, Google, California.

PHD STUDENT GRADUATIONS OUTSIDE UK

- 2016 **Dr. Damith Chathuranga**, *Co-supervised at the Ritsumeikan University, Japan, Subsequently Senior Lecturer*, University of Moratuwa, Sri Lanka.
- 2015 **Dr. Miguel González-Fierro**, *Co-supervised at the University of Carlos III, Madrid, Subsequently Senior Data Scientist*, Microsoft, UK.
- 2015 **Dr. Isuri Wijesundera**, *Co-supervised at the University Melbourne, Australia, Subsequently Data Analyst*, ANZ Bank, Melbourne, Australia.
- 2013 **Dr. Manoj Liyanage**, *Co-supervised at the University Melbourne, Australia, Subsequently Mechatronics Engineer*, Australis Engineering, Sydney, Australia.

POSTDOCTORAL RESEARCH ASSOCIATE ALUMNI

- 2016-2019 **Dr. Nicolas Herzig**, *Subsequently Research Scientist*, University of Sheffield, UK.
- 2014-2015 **Dr. Dimitri Ognibene**, *Subsequently Lecturer in Computer Science and Artificial Intelligence*, University of Essex, UK.
- 2014-2015 **Dr. Kris De Meyer**, *Subsequently Science Documentary Producer, and Research Affiliate*, King's College London, UK.

Journal Publications

- [1] SM Hadi Sadati et al. "TMTDyn: A Matlab package for modeling and control of hybrid rigid-continuum robots based on discretized lumped system and reduced order models". In: *International Journal of Robotics Research [Online]*. Available: <https://bit.ly/2Xvcgil> ().
- [2] Elham Hamid, Nicolas Herzig, Sara Adela Abad Guaman, and Thrishantha Nanayakkara. "A State-Dependent Damping Method to Reduce Collision Force and Its Variability". In: *IEEE Robotics and Automation Letters* (2021).
- [3] Liang He, Xinyang Tan, Koichi Suzumori, and Thrishantha Nanayakkara. "A Method to 3D Print a Programmable Continuum Actuator with Single Material Using Internal Constraint". In: *Sensors and Actuators A: Physical* (2021), page 112674.
- [4] Luca Scimeca, Josie Hughes, Perla Maiolino, Liang He, Thrishantha Nanayakkara, and Fumiya Iida. "Action Augmentation of Tactile Perception for Soft-Body Palpation". In: (2021).
- [5] Xinyang Tan, Saeema Ahmed-Kristensen, Jiangang Cao, Qian Zhu, Wei Chen, and Thrishantha Nanayakkara. "A Soft Pressure Sensor Skin to Predict Contact Pressure Limit Under Hand Orthosis". In: *IEEE Transactions on Neural Systems and Rehabilitation Engineering* (2021).

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- [6] Liang He, Nicolas Herzig, Simon de Lusignan, Luca Scimeca, Perla Maiolino, Fumiya Iida, and Thrishantha Nanayakkara. "An Abdominal Phantom with Tunable Stiffness Nodules and Force Sensing Capability for Palpation Training". In: *IEEE Transactions on Robotics* (2020).
- [7] Liang He, Qiujie Lu, Sara-Adela Abad, Nicolas Rojas, and Thrishantha Nanayakkara. "Soft Fingertips with Tactile Sensing and Active Deformation for Robust Grasping of Delicate Objects". In: *IEEE Robotics and Automation Letters* (2020).
- [8] Thilina Dulantha Lalitharatne, Yongxuan Tan, Florence Leong, Liang He, Nejra Van Zalk, Simon de Lusignan, Fumiya Iida, and Thrishantha Nanayakkara. "Facial Expression Rendering in Medical Training Simulators: Current Status and Future Directions". In: *IEEE Access* (2020).
- [9] SM Hadi Sadati, Ali Shiva, Nicolas Herzig, Caleb D Rucker, Helmut Hauser, Ian D Walker, Christos Bergeles, Kaspar Althoefer, and Thrishantha Nanayakkara. "Stiffness Imaging With a Continuum Appendage: Real-Time Shape and Tip Force Estimation From Base Load Readings". In: *IEEE Robotics and Automation Letters* 5.2 (2020), pages 2824–2831.
- [10] Xinyang Tan, Liang He, Jiangang Cao, Wei Chen, and Thrishantha Nanayakkara. "A Soft Pressure Sensor Skin for Hand and Wrist Orthoses". In: *IEEE Robotics and Automation Letters* 5.2 (2020), pages 2192–2199.
- [11] Sara-Adela Abad, Nicolas Herzig, Seyedmohammadhadi M Hadi Sadati, and Thrishantha Nanayakkara. "Significance of the Compliance of the Joints on the Dynamic Slip Resistance of a Bioinspired Hoof". In: *IEEE Transactions on Robotics* (2019).
- [12] S Akhond, N Herzig, H Wegiriya, and T Nanayakkara. "A Method to Guide Local Physical Adaptations in a Robot Based on Phase Portraits". In: *IEEE Access* 7 (2019), pages 78830–78841.
- [13] Ali Shiva et al. "Elasticity Versus Hyperelasticity Considerations in Quasistatic Modeling of a Soft Finger-Like Robotic Appendage for Real-Time Position and Force Estimation". In: *Soft robotics* 6.2 (2019), pages 228–249.
- [14] Hasitha Wegiriya, Nicolas Herzig, Sara-Adela Abad, SM Hadi Sadati, and Thrishantha Nanayakkara. "A Stiffness Controllable Multimodal Whisker Sensor Follicle for Texture Comparison". In: *IEEE Sensors Journal* (2019).
- [15] Giuseppe Cotugno, Jelizaveta Konstantinova, Kaspar Althoefer, and Thrishantha Nanayakkara. "Modelling the structure of object-independent human affordances of approaching to grasp for robotic hands". In: *PloS one* 13.12 (2018), e0208228.
- [16] Nicolas Herzig, Perla Maiolino, Fumiya Iida, and Thrishantha Nanayakkara. "A variable stiffness robotic probe for soft tissue palpation". In: *IEEE Robotics and Automation Letters* 3.2 (2018), pages 1168–1175.
- [17] Anuradha Ranasinghe, Prokar Dasgupta, Atulya Nagar, and Thrishantha Nanayakkara. "Human Behavioral Metrics of a Predictive Model Emerging During Robot Assisted Following Without Visual Feedback". In: *IEEE Robotics and Automation Letters* 3.3 (2018), pages 2624–2631.
- [18] SH Sadati, Luis Sullivan, Ian D Walker, Kaspar Althoefer, and DPT Nanayakkara. "3D-printable thermoactive helical interface with decentralized morphological stiffness control for continuum manipulators". In: Institute of Electrical and Electronics Engineers. 2018.

- [19] SM Hadi Sadati, Luis Sullivan, Ian D Walker, Kaspar Althoefer, and Thrishantha Nanayakkara. "Three-dimensional-printable thermoactive helical interface with decentralized morphological stiffness control for continuum manipulators". In: *IEEE Robotics and Automation Letters* 3.3 (2018), pages 2283–2290.
- [20] Isuri Wijesundera, Malka N Halgamuge, Ampalavanapillai Nirmalathas, and Thrishantha Nanayakkara. "Predicting the mean first passage time (MFPT) to reach any state for a passive dynamic walker with steady state variability". In: *PloS one* 13.11 (2018), e0207665.
- [21] Jelizaveta Konstantinova, Giuseppe Cotugno, Prokar Dasgupta, Kaspar Althoefer, and Thrishantha Nanayakkara. "Palpation force modulation strategies to identify hard regions in soft tissue organs". In: *PloS one* 12.2 (2017), e0171706.
- [22] Visakha K Nanayakkara, Giuseppe Cotugno, Nikolaos Vitzilaios, Demetrios Venetsanos, Thrishantha Nanayakkara, and M Necip Sahinkaya. "The role of morphology of the thumb in anthropomorphic grasping: a review". In: *Frontiers in Mechanical Engineering* 3 (2017), page 5.
- [23] SM Hadi Sadati, S Elnaz Naghibi, Ian D Walker, Kaspar Althoefer, and Thrishantha Nanayakkara. "Control space reduction and real-time accurate modeling of continuum manipulators using ritz and ritz–galerkin methods". In: *IEEE Robotics and Automation Letters* 3.1 (2017), pages 328–335.
- [24] SM Sadati, S Elnaz Naghibi, Ali Shiva, Yohan Noh, Aditya Gupta, Ian D Walker, Kaspar Althoefer, and Thrishantha Nanayakkara. "A geometry deformation model for braided continuum manipulators". In: *Frontiers in Robotics and AI* 4 (2017), page 22.
- [25] Damith Suresh Chathuranga, Zhongkui Wang, Yohan Noh, Thrishantha Nanayakkara, and Shinichi Hirai. "Magnetic and mechanical modeling of a soft three-axis force sensor". In: *IEEE Sensors Journal* 16.13 (2016), pages 5298–5307.
- [26] Giuseppe Cotugno, Kaspar Althoefer, and Thrishantha Nanayakkara. "The role of the thumb: study of finger motion in grasping and reachability space in human and robotic hands". In: *IEEE Transactions on Systems, Man, and Cybernetics: Systems* 47.7 (2016), pages 1061–1070.
- [27] Thrishantha Nanayakkara, Allen Jiang, Maria del Rocio Armas Fernández, Hongbin Liu, Kaspar Althoefer, and Joao Bimbo. "Stable grip control on soft objects with time-varying stiffness". In: *IEEE Transactions on Robotics* 32.3 (2016), pages 626–637.
- [28] Nantachai Sornkarn, Prokar Dasgupta, and Thrishantha Nanayakkara. "Morphological computation of haptic perception of a controllable stiffness probe". In: *PloS one* 11.6 (2016), e0156982.
- [29] Nantachai Sornkarn and Thrishantha Nanayakkara. "Can a soft robotic probe use stiffness control like a human finger to improve efficacy of haptic perception?" In: *IEEE transactions on haptics* 10.2 (2016), pages 183–195.
- [30] Isuri Wijesundera, Malka N Halgamuge, Ampalavanapillai Nirmalathas, and Thrishantha Nanayakkara. "MFPT calculation for random walks in inhomogeneous networks". In: *Physica A: Statistical Mechanics and its Applications* 462 (2016), pages 986–1002.
- [31] Miguel González-Fierro, Daniel Hernández-García, Thrishantha Nanayakkara, and Carlos Balaguer. "Behavior sequencing based on demonstrations: a case of a humanoid opening a door while walking". In: *Advanced Robotics* 29.5 (2015), pages 315–329.

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