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Brief Professional Profile

Professor Michael A. Saliba has been conducting research in Robotics and Automation at the University of Malta for the past 20 years. He set up, developed, and leads the *Robotic Systems Laboratory (RSL)* (formerly the *Robotics and Industrial Automation Laboratory – RIAL*) at the university, and directs an active research and development programme in Robotics and in Industrial Automation. His main areas of research concern the development of dexterous robotic and prosthetic hands; the study of grasping, manipulation and dexterity issues in robotics and in humans; the development of whole hand input / output devices (master gloves) for the tele-operation of artificial hands; the development of innovative actuators and sensors; the design optimization of compact multi-degree-of freedom mechatronic systems; the study of reconfigurability in manufacturing automation; and the implementation of case studies in industrial automation. He has originated and led several research projects, in particular the nationally funded projects “*A rationalisation of industrial automation requirements and service provision in Malta, with a focus on the development of new modular reconfigurable industrial automation systems – AUTOMATE*” (2007 to 2010), and “*Development of the mechanical and control framework for a minimal anthropomorphic prosthetic hand – MAProHand*” (2017 to date), and regularly publishes the results of his research in peer reviewed journals and international conferences. He regularly reviews international journal and conference submissions. He is a Senior Member of the *Institute of Electronic and Electrical Engineers (IEEE, USA)*, and a Member of the *American Society of Mechanical Engineers (ASME, USA)*, the *Society of Manufacturing Engineers (SME, USA)*, the *American Physical Society (APS, USA)*, and the Chamber of Engineers (CoE, Malta).

Professor Saliba has developed and taught various postgraduate and undergraduate study units at the University of Malta, in the areas of Robotics, Industrial Automation, Manufacturing Fundamentals, Engineering Mechanics, and Public Speaking; and has supervised and/or examined numerous postgraduate and undergraduate theses. He is very active in the administrative affairs of the University, having served on the University Governing Council and on the University Senate; and as Deputy Dean of the Faculty of Engineering, Chairman of the B.Eng.(Mechanical Engineering) and of the M.Sc. (Research) Boards of Studies within the Faculty of Engineering, Head of the Department of Industrial and Manufacturing Engineering, and President of the University of Malta Academic Staff Association, among many other roles. Prior to embarking on his postgraduate studies he was a Planning and Development Engineer with Air Malta Co. Ltd.

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Research Profile

Funding

Principal Investigator, "Development of a framework for the conversion to robot-inclusive homes, and upgrading of the UM domestic robot prototype – **MARIS-II**", funded by the University of Malta through the University Research Grant Committee, 2019 to date, **€ 2,200** to date. Additional funding through bench fees, **€ 1,500** to date.

Principal Investigator, "Development of the mechanical and control framework for a minimal anthropomorphic prosthetic hand – **MAProHand**", funded by the Government of Malta under the 2018 Fusion Technology Development Programme through the Malta Council for Science and Technology, 2019 to date, **€ 195,000**.

Project Proposer and Principal Supervisor, "Towards robot-assisted living through universal design of the environment", leading to the "Mobile Assistant Robot in an Inclusive Space – **MARIS-I**", funded through the Malta Government Endeavour Postgraduate Scholarship Scheme, 2017 to date, **€ 8,000**.

Principal Investigator, "Development of the mechanical and control framework for a minimal anthropomorphic prosthetic hand – **MAProHand**", funded by the Government of Malta under the 2017 Fusion Commercialization Voucher Programme through the Malta Council for Science and Technology, 2017 to 2018, **€ 19,300**.

Project Proposer and Principal Supervisor, "Design optimization of compact, multi-degree-of-freedom mechatronic devices", leading to the "University of Malta Minimal Anthropomorphic Hand II – **UM-MAR-II**", funded through the Malta Government "Master it" Postgraduate Scholarship Scheme, 2014 to 2015, **€ 8,000**.

(The UM-MAR-II project is still ongoing and is supported by internal UM funds.)

Principal Investigator, "A rationalisation of industrial automation requirements and service provision in Malta, with a focus on the development of new modular reconfigurable industrial automation systems – **AUTOMATE**", funded by the Government of Malta under the 2006 National Research and Innovation Programme through the Malta Council for Science and Technology, 2007 to 2010, **€ 143,300**.

Co-Investigator, "Intelligent design and manufacture of micro-parts for biomedical applications: Case Study – The development of a laparoscopic surgery tool – **IDeLap**", funded by the Government of Malta under the 2006 National Research and Innovation Programme through the Malta Council for Science and Technology, 2007 to 2010, **€ 107,800**.

Principal Investigator, "Development of a dexterous robotic hand for manufacturing, prosthetic, and general research applications – **HAND**"; "Studies on minimalism versus anthropomorphism in robot hand dexterity – **DEXTERITY**"; and "Application of Manual Dexterity Studies to Prosthetics and Service Robotics – **DEXAPP**", funded by the University of Malta through the University Research Grant Committee, 2006 to 2018, **€ 42,000**.

Project Proposer and Principal Supervisor, "Robot time and cost management in the application to multiple production processes", funded through bench fees, 2010 to 2012, **€ 1,500**.

Principal Investigator, various small projects with various industrial partners, funds from industry obtained in direct financial sponsorship to the department, 2002 to date, **€ 7,700** to date.

Principal Investigator, "Force Control in Robotic Grasping", funded by the University of Malta through the University Research Grant Committee, 2001 to 2005, **€ 9,300**.

Publications

Peer Reviewed Publications¹

M. A. Saliba, S. Azzopardi, C. Pace and D. Zammit, "A heuristic approach to module synthesis in the design of reconfigurable manufacturing systems", *International Journal of Advanced Manufacturing Technology*, accepted for publication 11 Feb 2019. Published online 9 March 2019, <https://doi.org/10.1007/s00170-019-03444-4>.

E. Gingell and **M. A. Saliba**, "Analytical study and versatile simulation of tool crib operations in an aircraft maintenance hangar", *International Journal of Mechanical Engineering and Robotics Research*, accepted for publication 17 May 2018. In press, to be published in Vol. 8, No. 3 or 4 (2019).

A. Coppini and **M. A. Saliba**, "Towards practical guidelines for conversion from fixed to reconfigurable manufacturing automation systems", *Journal of Industrial Integration and Management*, Vol. 3, No. 1 (2018) 1850002.

M. A. Saliba and I. Attard, "Process Development for the In-house Manufacture of Aircraft Cabin and Cargo Composite Panels", *Proceedings of the 9th IEEE International Conference on Mechanical and Aerospace Engineering, Budapest, Hungary, July 2018*, pp. 146-150.

E. Gingell and **M. A. Saliba**, "Analysis, Simulation and Improvement of Tool Crib Operations in an Aircraft Maintenance Hangar", *Proceedings of the 9th IEEE International Conference on Mechanical and Aerospace Engineering, Budapest, Hungary, July 2018*, pp. 593-597.

D. Bonello, **M. A. Saliba** and K. P. Camilleri, "An exploratory study on the automated sorting of commingled recyclable domestic waste", *27th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2017), Modena, Italy, June 2017; Procedia Manufacturing 11 (2017) pp. 686-694*.

A. Coppini and **M. A. Saliba**, "Towards practical guidelines for conversion from a fixed to a reconfigurable manufacturing automation system", *27th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2017), Modena, Italy, June 2017; Procedia Manufacturing 11 (2017) pp. 1102-1111*.

M. A. Saliba, D. Zammit, and S. Azzopardi, "Towards practical, high-level guidelines to promote company strategy for the use of reconfigurable manufacturing automation", *Robotics and Computer-Integrated Manufacturing*, Vol. 47 (2017) 53-60.

S. Grech and **M. A. Saliba**, "Design and Development of a Triggered Type Underactuated Grasping Mechanism and its Application to an Experimental Test Bed", in *Mechanisms and Machine Science 43, New Trends in Mechanism and Machine Science: Theory and Industrial Applications*, ed. P. Wenger and P. Flores, Springer International Publishing, 2017, pp. 383-390.

M. A. Saliba, D. Zammit and S. Azzopardi, "A study on the use of advanced manufacturing technologies by manufacturing firms in a small, geographically isolated, developed economy: the case of Malta", *International Journal of Advanced Manufacturing Technology*, Vol. 89 (2017), 3691-3707.

D. Dalli and **M. A. Saliba**, "Addressing Simplicity, Dexterity and Usability of Compact, Multi-Degree-of-Freedom Mechatronic Devices", *IEEE International Conference on Advanced Intelligent Mechatronics, Banff, Alberta, Canada, July 2016*, pp. 1357-1362.

D. Dalli and **M. A. Saliba**, "The University of Malta Minimal Anthropomorphic Robot (UM-MAR) Hand II", *IEEE International Conference on Advanced Intelligent Mechatronics, Banff, Alberta, Canada, July 2016*, pp. 371-376.

¹ M. A. Saliba is the corresponding author and principal investigator of all the engineering publications, 2001 to date, in this list.

M. A. Saliba and C. W. de Silva, "Quasi-dynamic analysis, design optimization, and evaluation of a two-finger underactuated hand", *Mechatronics*, Vol. 33 (2016), 93-107.

J. Azzopardi and **M. A. Saliba**, "Case Study: Evaluation and Optimization of a Reconfigurable System for Automated Assembly of Deformable Products", *25th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2015)*, Wolverhampton, UK, June 2015, Vol II, pp. 324-331.

M. A. Saliba, D. Zammit and S. Azzopardi, "Towards practical guidelines to promote a company strategy for reconfigurable manufacturing automation systems", *25th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2015)*, Wolverhampton, UK, June 2015, Vol II, pp. 316-323.

J. M. Trapani and **M. A. Saliba**, "Experimental Extraction of Tactile Sensor Specifications for a Minimal Anthropomorphic Robot Hand", *IEEE-RAS International Conference on Humanoid Robots*, Madrid, Spain, 18-20 November 2014, pp. 419-424.

D. Dalli and **M. A. Saliba**, "Towards the Development of a Minimal Anthropomorphic Robot Hand", *IEEE-RAS International Conference on Humanoid Robots*, Madrid, Spain, 18-20 November 2014, pp. 413-418.

M. A. Saliba and C. Ellul, "Dexterous actuation", *Mechanism and Machine Theory*, Vol. 70 (2013), 45-61.

M. A. Saliba, A. Chetcuti and M. J. Farrugia, "Towards the rationalization of robot hand design: Extracting knowledge from constrained human manual dexterity testing", *International Journal of Humanoid Robotics*, Vol. 10, No. 2 (2013), 1350001.

M. A. Saliba, D. J. Cassar and M. Axiak, "Undergraduate mechatronics research case study: Contributing towards a dexterous robot hand", *International Journal of Mechanical Engineering Education*, Vol. 40, No. 3 (2012), 234-250.

M. Caruana and **M. A. Saliba**, "Robot Time and Cost Management in the Application to Multiple Low-Volume Production Processes", *Proceedings of the 22nd International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2012)*, Helsinki, Finland, June 2012.

M. A. Saliba and A. Caruana, "Migrating from manual to automated assembly of a product family: procedural guidelines and a case study", in *Manufacturing System*, ed. F. Abdul Aziz, INTECH Publishers, ISBN 978-953-51-0530-5, 2012, 331-360.

D. J. Cassar and **M. A. Saliba**, "A Force Feedback Glove Based on Magnetorheological Fluid: Prototype Development and Evaluation", *Proceedings of the 1st IEEE International Conference on Applied Bionics and Biomechanics (ICABB-2010)*, Venice, Italy, October 2010.

C. Ellul and **M. A. Saliba**, "Comparative Analysis of Artificial Hands: The Need for Reporting and Test Standards", *Proceedings of the 1st IEEE International Conference on Applied Bionics and Biomechanics (ICABB-2010)*, Venice, Italy, October 2010.

S. Azzopardi, **M. A. Saliba** and D. Zammit, "The Application of an Intersectoral Reconfigurable Manufacturing Automation Testbed to provide an Automation Solution to Industry", *Proceedings of the 20th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2010)*, San Francisco, CA, July 2010, pp. 693-700.

J. Spiteri and **M. A. Saliba**, "Increasing the Operational Efficiency of a Commercial Laundry: Layout Optimization and Process Automation", *Proceedings of the 20th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2010)*, San Francisco, CA, July 2010, pp. 685-692.

D. J. Cassar and **M. A. Saliba**, "A Force Feedback Glove Based on Magnetorheological Fluid: Preliminary Design Issues", *The 15th IEEE Mediterranean Electrotechnical Conference (MELECON 2010)*, Valletta, Malta, April 2010, pp. 618-623.

M. A. Saliba, A. Vella Zarb and J. C. Borg, "A Modular, Reconfigurable End Effector for the Plastics Industry", *Assembly Automation*, Vol. 30, Issue 2, 2010, pp. 147-154.

D. J. Cassar and **M. A. Saliba**, "Control System Development for a Dexterous Robot Hand with Remotely Located Actuators and Sensors", *10th International Workshop on Research and Education in Mechatronics (REM 2009) Glasgow, UK, September 2009*.

D. Zammit, S. Azzopardi, **M. A. Saliba** and M. M. Zammit, "Perceptions and Problems Related to the Use of Manufacturing Automation in a Small, Geographically Isolated Economy", *Proceedings of the 19th I.Mech.E. International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2009), Teesside, UK, July 2009, pp. 407-414*.

M. A. Saliba, A. Vella Zarb and J. C. Borg, "Development of a Modular, Reconfigurable End Effector for the Plastics Industry: A Case Study", *Proceedings of the 19th I.Mech.E. International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2009), Teesside, UK, July 2009, pp. 399-406*.

S. Azzopardi, **M. A. Saliba**, D. Zammit and C. Pace, "An Intersectoral Reconfigurable Manufacturing Automation Testbed: Preliminary Design Considerations", *Proceedings of the ASME / IEEE International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2009), London, UK, June 2009, pp. 696-704*.

M. A. Saliba, A. Amato, J. C. Borg and K. Alamango, "Parts Presentation and Handling for Packaging – Case Study: Conceptualisation and Prototyping of a Flexible Mechanism for the Placing of Plastic Valves into Pouches", *Proceedings of the 18th I.Mech.E. International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2008), Skövde, Sweden, June 2008, pp. 708-715*.

M. A. Saliba, G. Spiteri, B. Grech Sollars and K. Farrugia, "A Highly Flexible, Automated, Parts Sorting and Transfer System", *Proceedings of the 18th I.Mech.E. International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2008), Skövde, Sweden, June 2008, pp. 428-435*.

M. A. Saliba and M. Axiak, "Design of a Compact, Dexterous Robot Hand with Remotely Located Actuators and Sensors", *Proceedings of the 15th IEEE Mediterranean Conference on Control and Automation (MED'07), Athens, Greece, June 2007*.

M. J. Farrugia and **M. A. Saliba**, "Optimisation of Anthropomorphic Robot Hand Design through Human Manual Dexterity Testing", *Proceedings of the 37th IFR International Symposium of Robotics (ISR 2006), Munich, Germany, May 2006*.

N. Mifsud, A. M. Grech, **M. A. Saliba**, and S. G. Fabri, "Development of an Anthropomorphic Robot Finger: Mechanical and Kinematic Aspects", *Proceedings of the 37th IFR International Symposium of Robotics (ISR 2006), Munich, Germany, May 2006*.

M. A. Saliba, D. Camilleri and M. J. Farrugia, "Development of an Anthropomorphic Robot Hand and Wrist for Teleoperation Applications", *Proceedings of the IEEE International Conference on Information and Automation (ICIA 2005), Colombo, Sri Lanka, December 2005*.

M. A. Saliba, F. Farrugia, and A. Giordmaina, "A Compact Glove Input Device to Measure Human Hand, Wrist and Forearm Joint Positions for Teleoperation Applications", *Proceedings of the IEEE / APS International Conference on Mechatronics and Robotics (MechRob 2004), Aachen, Germany, September 2004, pp. 841-846*.

M. A. Saliba and C. M. Seguna, "A Biologically Inspired Sensor for the Prevention of Object Slip during Robotic Grasping and Manipulation", *Proceedings of the IEEE International Conference on Intelligent Manipulation and Grasping (IMG04), Genova, Italy, July 2004, pp 46-51*.

T. J. Stocki, D. F. Measday, E. Gete, **M. A. Saliba**, B.A. Moftah and T.P. Gorringer, "Gamma-rays from muon capture in ^{14}N ", *Nuclear Physics A, Vol 697 (2002) pp. 55-74*.

C. M. Seguna and **M. A. Saliba**, "The Mechanical and Control System Design of a Dexterous Robotic Gripper", *Proceedings of the IEEE International Conference on Electronics, Circuits, and Systems (ICECS 2001)*, Malta, September 2001, pp. 1195 - 1201 vol. 3.

T. J. Stocki, D. F. Measday, E. Gete, **M. A. Saliba**, and J. Lange, "Hyperfine Transitions in Light Muonic Atoms of Odd Z", *Physical Review A*64, 042505 (2001).

E. Gete, D. F. Measday, B. A. Mofteh, **M. A. Saliba**, and T. J. Stocki, "Neutron Induced Peaks in Ge Detectors from Evaporation Neutrons", *Nuclear Instruments and Methods A*388, 212-219 (1997).

E. Gete, D. F. Measday, B. A. Mofteh, **M. A. Saliba**, and T. J. Stocki, "Dependence on Neutron Energy of Neutron Induced Peaks in Ge Detectors", *Proceedings SPIE*. 2867, *International Conference Neutrons in Research and Industry*, Crete, Greece, June 1996.

C. W. de Silva and **M. A. Saliba**, "Modelling and Mechanical Analysis of a Robotic Gripper", *Modelling and Simulation - IASTED International Symposium*, Pittsburgh, April 1996.

C. W. de Silva and **M. A. Saliba**, "Instrumentation Issues in the Handling of Fish for Automated Processing", *Proceedings of the IEEE International Conference on Industrial Electronics, Control, Instrumentation and Automation (IECON'92)*, San Diego, November 1992, pp. 789 – 794 vol. 2.

M. A. Saliba and C. W. de Silva, "An Innovative Robotic Gripper for Grasping and Handling Research", *Proceedings of the IEEE International Conference on Industrial Electronics, Control and Instrumentation (IECON'91)*, Kobe, Japan, November 1991 pp. 975 - 979 vol. 2.

Other Publications

M. A. Saliba, "Automation for Competitiveness", *Chamber Link Newsletter*, Malta Chamber of Commerce, Enterprise and Industry, Issue 17, 2009.

M. A. Saliba and C. W. de Silva, "The Design, Construction and Functional Analysis of an Innovative Robotic Gripper", *Engineering Today*, Publication of the Chamber of Professional Engineers (Malta), Issue No. 8, April 2000.

M. A. Saliba, D.F. Measday, T.J. Stocki, M.E. Christy, B.C. Doyle, T.P. Gorringer, C. Jiang, M.A. Kovash, K. Liu, B. Bassalleck, J. Stasko, D. Wolfe, E. Korkmaz, A. Opper, H. Fischer, and D. Ottewell, "The Neutron-Neutron 1S_0 Scattering Length via the Reaction $\pi^-d \rightarrow \gamma nn$ ", *Fall Meeting of the Division of Nuclear Physics of the American Physical Society*, Whistler, B.C., October 1997.

T. J. Stocki, E. Gete, J. Lange, D. F. Measday, B. A. Mofteh, **M. A. Saliba**, and T. P. Gorringer, "Measurement of Gamma Rays from μ -capture on ^{14}N ", *Fall Meeting of the Division of Nuclear Physics of the American Physical Society*, Whistler, B.C., October 1997.

M. A. Saliba, D. Calistrate, P. Lisonek, R. Luchsinger, M. Paulhus, A. Rhemtulla, and A. Zagoskin, "Fingerprint Identification – New Directions" (invited paper), *Proceedings of the 1997 Industrial Problem Solving Workshop of the Pacific Institute for the Mathematical Sciences*, Vancouver, B.C., September 1997.

M. A. Saliba and C. W. de Silva, "Dynamics of Robotic Grasping", *2nd ASME Northwest International Region VIII Graduate Student Technical Conference*, Seattle, April 1991.

M. A. Saliba, "Cubology – It's a Cinch... (or isn't it?)", *The Campus Engineer*, University Engineering Student-Worker Association, University of Malta, 1981.

Thesis Titles

M. A. Saliba, "A Precision Measurement of the Neutron-Neutron Scattering Length from the Reaction $\pi^-d \rightarrow \gamma nn$ ", *Ph.D. Thesis*, University of British Columbia, April 1998.

M. A. Saliba, "Kinematic, Force and Dexterity Analyses of Planar Robotic Grasping", *M.A.Sc. Thesis, University of British Columbia, September 1991.*

M. A. Saliba, "The Design and Construction of a Pneumatic, Limited Sequence Robot Arm", *B.Mech.Eng.(Hons) Final Year Thesis, University of Malta, February 1986.*

Patents

J. C. Borg, **M. A. Saliba**, A. K. Grech, A. Galea, M. R. Muscat, C. Ellul, J. P. Borg, E. Francalanza, "Minimally Invasive Surgical End-Effector Combining Scissors, Hook and Grasper", World Intellectual Property Organization (WIPO) Patent application, filed 10 May 2011 (currently deferred).

J. C. Borg, **M. A. Saliba**, A. K. Grech, A. Galea, M. R. Muscat, C. Ellul, J. P. Borg, E. Francalanza, "Minimally Invasive Surgical End-Effector Combining Scissors, Hook and Grasper", Malta Patent Number 4284, filed 10 May 2010.

Main New Publications in Process¹

Y. Aquilina, M. A. Saliba², S. G. Fabri, "Mobile Assistant Robot in an Inclusive Space – the MARIS-I Project" (Research project has just been completed. Manuscript to be drafted in April 2019)

D. Dalli, M. A. Saliba², "Design Effectiveness of Compact, Multi-degree-of-freedom Mechatronic Devices: the SDU Approach"

(This is an extended, archival journal version of our 2016 IEEE conference paper on the subject, and will include new analysis and new case studies that have been completed. Manuscript planned to be drafted by July 2019)

M. A. Saliba², M. Cutajar, G. Agius Pascalidis, D. Dalli, "A Minimal Anthropomorphic Prosthetic Hand: Development and Testing of a Preliminary Prototype"

(This will introduce our first prosthetic hand prototype UM-PRO-I. This preliminary project is completed, however publication is currently temporarily withheld due to IP commitments associated with the MAProHand project)

M. A. Saliba², A. Cutajar, Y. Elsadi, D. Dalli, "Principal Component Analysis and Variances of Free and Constrained Human Hand Motion"

(Our first study on this topic will be completed in May 2019. Publication is currently temporarily withheld due to IP commitments associated with the MAProHand project)

M. A. Saliba², D. Dalli, J. Barbara, M. Xuereb, "Tele-operation and Dexterity Measurement of the UM-MAR-II Hand" (This will address new work carried out on the UM-MAR-II Hand since the 2016 IEEE conference paper on the subject. Manuscript planned to be drafted in late 2019)

Other Research Presentations (since 2001 – selected)

M. A. Saliba, "Research in the UOM Robotics and Industrial Automation Laboratory", Presentation to academic staff members and postgraduate students of the Department of Factory Planning and Factory Management, of the Technical University of Chemnitz, Chemnitz, Germany, 9 July 2015.

M. A. Saliba, "UOM Robotics and Industrial Automation Laboratory – Recent and Ongoing Work", DIME Research Day, Malta, 4 February 2014.

M. A. Saliba, "Robots: Extending Human Function", Public Lecture, EU Robotics Week, European Robotics Coordination Action, Malta, 30 November 2011.

M. A. Saliba, "Robotics and Automation Research in the RIAL - Update", DIME Research Day, Malta, 3 June 2010.

¹ Proposed paper titles and order of authors is provisional.

² Corresponding author.

M. A. Saliba, "Can Maltese Manufacturing Benefit from Better Use of Automation? – An Introduction to the AUTOMATE Project", Workshop on the Use of Automation in the Maltese Manufacturing Industry, Valletta, Malta, 8 April 2009.

M. A. Saliba, "Robotics and Automation Research in the IAL", DIME Research Day, Malta, 13 March 2009.

M. A. Saliba, "University Research in Direct Support of Local Industry" (invited speaker), ARCHINET Workshop on Learning Innovation Transfer from the Success Stories Parco Scientifico e Tecnologico della Sicilia, Catania, 11 December 2008.

M. A. Saliba, "University Research in Direct Support of Local Industry: the AUTOMATE Project" (invited speaker), ARCHINET / FTZ Workshop on Science Parks and Entrepreneurship: Networking for Competitiveness", Malta, 28 November 2008.

M. A. Saliba, "A rationalisation of industrial automation requirements and service provision in Malta, with a focus on the development of new modular reconfigurable industrial automation systems – AUTOMATE" (invited speaker), The Seventh Framework R&D Programme: opportunities for SMEs, Malta Council for Science and Technology, 12 June 2008.

M. A. Saliba, "Towards a Dexterous Robot Hand at the University of Malta", Presentation to UOM final year undergraduate students, 30 April 2007.

J. A. Briffa, M. Muscat, M. A. Saliba, and J. Sultana, "The EURATOM Programme: What the UOM can Contribute", Meeting on Malta – ENEA Collaboration", Frascati, Italy, 25 to 26 September, 2006.

M. A. Saliba, "Robot Hands: Towards Greater Versatility and Dexterity", DME Research Day, Malta, 5 June 2006.

M. A. Saliba, "Research in Robotic Grasping and Handling at the University of Malta" poster presentation at the XV Annual Engineering Conference of the Chamber of Engineers – Research and Development: Our Hidden Potential, Westin Dragonara Resort, Malta, April 2006.

J. A. Briffa, M. Muscat, M. A. Saliba, and J. Sultana, "The EURATOM Programme: What Malta can Contribute", Enlargement of the European Union – Integration of New and Recent Partners in the EURATOM Fusion Programme: Follow-Up Meeting, Garching, Germany, 12 to 13 September 2005.

M. A. Saliba, "Robot Hands: In Pursuit of Greater Versatility and Dexterity", Presentation to academic staff members and postgraduate students of the Department of Manufacturing Engineering and Management, and of the Department of Mechanical Engineering, of the University of Strathclyde, Glasgow, UK, 11 June 2003.

M. A. Saliba, "The EU Fifth Framework Programme: The Competitive and Sustainable Growth Thematic Programme", Workshop on Accessing EU funds through Fifth framework Programme, Gozo, Malta, 26 July 2001.

M. A. Saliba, "Overview of EU FP5 Growth Work Programme, and 4th Call for Proposals", Information Day on the FP5 Competitive and Sustainable Growth Thematic Programme, Malta, 5 March 2001.

Reviews and Evaluations

Reviews

Reviewer, IEEE Transactions on Biomedical Engineering, 2018.

Reviewer, International Journal of Mechanical Engineering Education, Sage, 2018.

Reviewer, Robotics and Computer-Integrated Manufacturing, Elsevier, 2018, 2015.

Reviewer, Mechanical Sciences, Copernicus Publications, 2018

Reviewer, IEEE Access – The Multidisciplinary Open Access Journal, 2018, 2017.

Member of the Technical Committee, and Reviewer, IEEE International Conference on Mechanical and Aerospace Engineering (ICMAE 2018), July 2018.

Reviewer, Journal of Bionic Engineering, Springer, 2018.

Reviewer, Technological Forecasting & Social Change, Elsevier, 2018.

Reviewer, Mechanism and Machine Theory, Elsevier, 2018.

Reviewer, International Journal of Lean Enterprise Research, Inderscience, 2017.

Reviewer, IEEE International Conference on Advanced Intelligent Mechatronics (AIM 2017), Munich, Germany, July 2017.

Reviewer, Journal of Mechanical Design, ASME, 2017, 2016.

Reviewer, Journal of Motor Behavior, Taylor & Francis, 2016.

Reviewer, 6th European Conference on Mechanism Science (EUCOMES 2016), Nantes, France, September 2016.

Reviewer, Proc. IMechE, Part D: Journal of Automobile Engineering, 2014.

Reviewer, Journal of Industrial Engineering & Management, OmniaScience, 2014.

Member of the Scientific Committee, and Reviewer, 24th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2014), San Antonio, Texas, USA, May 2014.

Member of the Scientific Committee, and Reviewer, 22nd International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2012), Helsinki, Finland, June 2012.

Regular Reviewer, Assembly Automation, Emerald Group Publishing Limited, since early 2011.

Member of the Scientific Committee, and Reviewer, 21st International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2011), Taichung, Taiwan, June 2011.

Reviewer, IEEE EUROCON 2011, International Conference on Computer as a Tool, Lisbon, Portugal, April 2011.

Reviewer, 1st IEEE International Conference on Applied Bionics and Biomechanics (ICABB 2010), Venice, Italy, October 2010.

Member of the Scientific Committee, and Reviewer, 20th International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2010), San Francisco, CA, July 2010.

Reviewer, 15th IEEE Mediterranean Electrotechnical Conference (MELECON 2010), Valletta, Malta, April 2010.

Reviewer, 10th International Workshop on Research and Education in Mechatronics (REM2009), Glasgow, Scotland, September 2009.

Member of the Scientific Committee, and Reviewer, 19th I.Mech.E. International Conference on Flexible Automation and Intelligent Manufacturing (FAIM 2009), Teesside, UK, July 2009.

Reviewer, ASME / IEEE International Conference on Reconfigurable Mechanisms and Robots (ReMAR 2009), London, UK, June 2009.

Reviewer, 4th International Congress on Electronics and Biomedical Engineering, Computer Science and Informatics, (CONCIBE SCIENCE 2008), Guadalajara, Jalisco, Mexico, May 2008.

Reviewer, I.Mech.E. International Conference on Advanced Design and Manufacture (ICADAM 2008), Sanya, China, January 2008.

Reviewer, IFAC International Journal of Intelligent Real-time Automation, 2001.

Evaluations

Evaluator, Malta Council for Science and Technology tender for the Development of a National Research Strategy for Manufacturing in Malta, October 2009.

Expert Evaluator, European Union Information Society Technologies (IST) programme for research and technological development, under the E.U. Sixth Framework Programme (FP6).

Expert Evaluator, International Science and Technology Center (ISTC).

Judge, Local Competition for the IEEE Student Paper Contest.

University - Industry R&D Collaborations

Orthopaedic Centre Malta, Development of the mechanical and control framework for a minimal anthropomorphic prosthetic hand, 2019 to date.

Toly Products Ltd., Application of shape memory alloy in cosmetic packaging, 2017-2018.

Baxter Malta Ltd., Optimization of robot integration to a manual multi-station assembly line, 2015-2016.

Sant Antnin Material Recovery Facility, An exploratory study on the automated sorting of recyclable domestic waste, 2015-2016.

Trelleborg Malta, Converting from a fixed to a reconfigurable manufacturing automation system, 2014-2015.

Baxter Malta Ltd., Evaluation and optimization of automated intravenous set assembly, 2013-2014.

Method Electronics Malta Ltd., Development approach for a reconfigurable manufacturing automation system, 2012-2013.

Abertax Ltd., Development of online inspection systems for valve assembly, 2012-2013.

Toly Products Ltd., Accurate part placement for insert moulding, 2012-2013.

Playmobil Malta Ltd., Robot time and cost management in the application to multiple production processes, 2010-2012.

Cheops (Malta) Ltd., Prominent Group of Companies (Malta), Toly Products Ltd., Malta Chamber of Commerce, Enterprise and Industry, A rationalisation of industrial automation requirements and service provision in Malta, with a focus on the development of new modular reconfigurable industrial automation systems, 2007-2010.

Lufthansa Technik Malta, Analysis, simulation and optimization of tool crib operations in an aircraft maintenance hangar, 2009-2010.

Portughes Laundry and Dry Cleaning, Increasing efficiency in the laundry department of Portughes Laundry and Dry Cleaning, 2008-2009.

Lufthansa Technik Malta, Process development for the manufacture of composite cabin and cargo panels, 2007-2008.

Oerlikon ESEC, Product development of die bonder options, 2007-2008.

Methode Electronics Malta Ltd., Migration from manual to automated assembly of a product family: procedural guidelines and case study, 2007-2008.

Methode Electronics Malta Ltd., Automation of the assembly process for automotive instrument panel switches, 2007-2008.

Toly Products Ltd., Design of a cosmetic case manipulator, 2006-2007.

Methode Electronics Malta Ltd., Analysis of product variation on manufacturing cell performance characteristics, 2004-2005.

Baxter Malta Ltd., Conceptualization and prototyping of a flexible mechanism for the placing of stopcocks into pouches, 2001-2002.

Methode Electronics Malta Ltd., Design of a material handling system for a complete manufacturing unit, 2001-2002.

Methode Electronics Malta Ltd., Design of an indexing and start inhibit system for a start ignition switch, 1999-2000.

W. E. T. Automotive Systems (Malta), The construction and improvement of a car seat heater laying machine, 1998-1999.

Other Research-Related Activities (since 1999 – selected)

Debater, Is University research a big waste of money?, Science in the City, Valletta, Malta, September 2015.

Speaker, "Robots: Extending Human Function", Robotics Week, University of Malta, 30 November 2011.

Chairman, final discussion session of the *Seminar on Biomedical Device Design and Manufacture in Malta*, Qawra, Malta, 1 June 2010.

Member of *Stakeholder Group 1: Leveraging human resources as an asset for research and innovation*, for the development of a National Research Strategy for Manufacturing in Malta, BEAT Consulting, four afternoon sessions, May – June 2010.

Co-chairman and Rapporteur for *Workshop B: David and Goliath: Can we outsmart the Giants?*, by a working group tasked, during an afternoon session, to carry out a review of Malta's Innovation Potential within the Manufacturing Environment notwithstanding its small size in comparison to its large counterparts, during the conference to launch the National Manufacturing Research Strategy. Presented the workshop outcomes to the floor. 15 March 2010.

Member of the Steering Committee of the Maltese Manufacturing Research Platform, Malta Council for Science and Technology, April 2009 to September 2012.

Main organiser (General Chair) of the Workshop on the Use of Automation in the Maltese Manufacturing Industry, addressed to managerial, technical and business representatives from companies throughout the entire Maltese manufacturing sector, Valletta, Malta, 8 April 2009.

Publicity Chair, Third IEEE International Symposium on Communications, Control and Signal Processing, Malta, 12 to 14 March 2008.

Member of the Organizing Committee, "National Conference on the Future of Manufacturing in European Malta", Malta, 7 December 2006.

Member of the Organizing Committee, IFIP TC5 / WG5.2 Fifth Workshop on Knowledge Intensive CAD, Malta, 23 to 25 July 2002.

National Contact Point (Malta) for the Competitive and Sustainable Growth Thematic Programme (GROWTH) under the European Union Fifth Framework Programme (FP5) for Research, Technological Development and Demonstration, September 2000 to June 2002. (Appointed by the Malta Council for Science and Technology (MCST), Valletta, Malta):

Organised and chaired the EU FP5 Competitive and Sustainable Growth Information Day in Malta, 5 March, 2001. The invited speakers for this session included the Unit Head for GROWTH Key Action 1 (from EU DG Research), and the UK NCP for GROWTH.

Delivered presentations at several FP5 information sessions organized by MCST.

Attended several GROWTH Programme Committee meetings and NCP meetings.

Drafted the Maltese contributions for jointly submitted NCP project proposals.

Was responsible for overseeing the dissemination of general and specific FP5 GROWTH Call information to the Maltese industrial/scientific community.

Focal Point (Malta) for the Key Action Innovative Products, Processes and Organization, under the Competitive and Sustainable Growth Thematic Programme of the European Union Fifth Framework Programme for Research, Technological Development and Demonstration, July 1999 to September 2000. (Appointed by the Malta Council for Science and Technology, Valletta, Malta).

Postgraduate Student Supervision and Examination

Postgraduate Students Supervised (Principal Supervisor)

Venkata Nagababu Nallapati, "Autonomous Navigation for a Domestic Mobile Robot in a Robot-inclusive Space", M.Sc. by Research, University of Malta, April 2019 to date (*in progress*).

Yesenia Aquilina, "Towards robot-assisted living through universal design of the environment", M.Sc. by Research, University of Malta, October 2017 to date (*in progress*).

George Preca, "Optimization of robot integration to a manual, multi-station assembly line", M.Sc. in Integrated Product Development, University of Malta, M.Sc. in Integrated Product Development, University of Malta, October 2015 to September 2016.

Donald Dalli, "Design optimization of compact, multi-degree-of-freedom mechatronic devices", M.Sc. by Research, University of Malta, October 2014 to October 2015.

Alan Coppini, "Converting from a fixed to a reconfigurable manufacturing automation system", M.Sc. in Integrated Product Development, University of Malta, October 2014 to September 2015.

Lilian Chambragne, "Evaluation of a minimal robotic anthropomorphic hand", Master of Physics in Mechatronic Engineering, University of Clermont-Ferrand, France, 2014. Project was carried out during an internship in Malta, April to August 2014.

Joseph Swain, "Development approach for a modular, reconfigurable automation system: an industrial case study", M.Sc. in Integrated Product Development, University of Malta, October 2012 to September 2013.

Maria Caruana, "Robot time and cost management in the application to multiple production processes", M.Sc. by Research, University of Malta, October 2010 to September 2012.

Sandro Azzopardi, "A study on manufacturing automation and reconfigurability and its application to the Maltese industry", M.Phil., University of Malta, May 2008 to September 2011.

Dawn Zammit, "A study on industrial automation requirements and facilitation in Malta", M.Sc. by Research, University of Malta, October 2008 to August 2010.

Carmel Ellul, "Dexterous actuation of compact, multi-degree-of-freedom systems", M.Sc. by Research, University of Malta, October 2008 to August 2010.

David Cassar, "Development of a haptic glove based on magnetorheological fluid", M.Sc. by Research, University of Malta, October 2008 to August 2010.

Ian Attard, "Process development for the manufacture of composite cabin and cargo panels", M.Sc. in Integrated Product Development, University of Malta, October 2007 to September 2008.

Hermann Borg, "Product development of die bonder options", M.Sc. in Integrated Product Development, University of Malta, October 2007 to September 2008.

Anthony Caruana, "Automation considerations for the assembly of a product family", M.Sc. in Integrated Product Development, University of Malta, October 2007 to September 2008.

Aleksandra B. Postawa, "Sensing and force control in robotic grasping: an analytical study of improvements to the UOM device", Diploma thesis for the Dipl.-Ing. Degree at Technische Universität Berlin, 2006. This work was awarded a Werner von Siemens Excellence Award, Munich, 2008.

Claire Seguna, "Slip sensing and force control in robotic grasping", M.Phil., University of Malta, 2001 – 2004.

Postgraduate Examination Boards

Ph.D. Examinations

Daniel Buhagiar, "Modelling and analysis of hydraulic wind turbines with integrated energy storage", Ph.D. Final Examination (Chairman), University of Malta, March 2017.

Kenneth Chircop, "On trajectory optimisation for the reduction of fuel burn and emissions", Ph.D. Final Examination, University of Malta, August 2014.

Clayton D'Amato, "An Investigation on laser surface modification of an A356 aluminium alloy", Ph.D. Final Examination, University of Malta, November 2013.

Gianluca Valentino, "Fast automatic beam-based alignment of the LHC collimator jaws", Ph.D. Final Examination, University of Malta, September 2013.

Andrew Sammut, "A runaway collision avoidance and alerting system", Ph.D. Final Examination, University of Malta, August 2011.

John C. Betts, "The laser deposition of austenitic stainless steel-matrix composites", Ph.D. Final Examination, University of Malta, April 2008.

Nicholas J. Sammut, "The field description for the large hadron collider", Ph.D. Final Examination, University of Malta, October 2006.

M.Phil. Examinations

Sandro Azzopardi, "A study on manufacturing automation and reconfigurability and its application to the Maltese industry", M.Phil. Final Examination, University of Malta, 2011.

Claire Seguna, "Slip sensing and force control in robotic grasping", M.Phil. Final Examination, University of Malta, 2004.

M.Sc. by Research Examinations

Adrian Camilleri, "Simulation for two cycle engines with scavenging through poppet valves", M.Sc. Final Examination (Chairman), University of Malta, June 2018.

Paul Joseph Borg, "Design, prototyping and testing of a load plate to measure contact forces", M.Sc. Final Examination, University of Malta, June 2018.

Clare Saliba, "Training simulator for teleoperated robots deployed at CERN", M.Sc. Final Examination, University of Malta, October 2017.

Luke Pace, "Stretching behaviour of polymer materials during pattern heated thermoforming", M.Sc. Final Examination (Chairman), University of Malta, October 2015.

Keith Zahra, "Influence of melt mixer on injection moulding of thermoset elastomers", M.Sc. Final Examination (Chairman), University of Malta, July 2015.

Jean Paul Azzopardi, "Analysis of engine downsizing: an experimental investigation of in-cylinder pressure and knock", M.Sc. Final Examination, University of Malta, December 2014.

Christian Zammit, "An algorithm for the automatic taxi of fixed wing aircraft", M.Sc. Final Examination (Chairman), University of Malta, October 2014.

Russell Farrugia, "A study on the aerodynamics of floating wind turbine rotors", M.Sc. Final Examination, University of Malta, 2014.

Bonnie Attard, "Improving the surface characteristics of Ti-6Al-4V and Timetal 834 using PIRAC nitriding treatments", M.Sc. Final Examination, University of Malta, 2014.

Christian Spiteri, "Combining additive and subtractive manufacturing", M.Sc. Final Examination (Chairman), University of Malta, 2013.

Timo Dolde, "Integrative development of injection-moulded, fibre-reinforced polymer parts for highly loaded applications", M.Sc. Final Examination (Chairman), University of Malta, 2012.

Maria Caruana, "Robot time and cost management in the application to multiple production processes", M.Sc. Final Examination, University of Malta, 2012.

Dawn Zammit, "A study on industrial automation requirements and facilitation in Malta", M.Sc. Final Examination, University of Malta, 2010.

David Cassar, "Development of a haptic glove based on magnetorheological fluid", M.Sc. Final Examination, University of Malta, 2010.

Carmel Ellul, "Dexterous actuation of compact, multi-degree-of-freedom systems", M.Sc. Final Examination, University of Malta, 2010.

M.Phil. to Ph.D. Transfer Examinations

Nikiforos Okkalidis, "Foot pose and trajectory estimation methods using inertial and auxiliary sensors for kinematic gait analysis", M.Phil. to Ph.D. Transfer Exam (Chairman), University of Malta, 2018.

Mahmud Ayat Almehat, "Assessing the benefits accruing from the implementation of an Environmental Management System at Wasteserv Malta Ltd.", M.Phil. to Ph.D. Transfer Exam (Chairman), University of Malta, 2018.

Kenneth Chircop, "On trajectory optimisation for the reduction of fuel burn and emissions", M.Phil. to Ph.D. Transfer Exam (Chairman), University of Malta, 2012.

Daniel Vella, "Design of vapour deposited transparent inorganic films for partly oxidised historical steel artifacts", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2007.

John Betts, "The laser deposition of austenitic stainless steel-matrix composites", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2005.

Philip Farrugia, "Paper-based computer-aided form sketching: a prescribed sketching language-based approach", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2005.

Nicholas Sammut, "The field description for the large hadron collider", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2005.

Patrick Attard, "Electronic system for a combustion sensor for closed-loop control in diesel engines", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2003.

Stephen Abela, "The tribological characteristics of castings and composite castings", M.Phil. to Ph.D. Transfer Exam, University of Malta, 2002.

M.Sc. Dissertation Examinations

Joseph Axiak, "An IPD approach to sustainability improvement using simulation and experimental analysis: medical device manufacturing processes case study", M.Sc. in Integrated Product Development (Chairman), University of Malta, 2015.

Abigail Cutajar, "Applying an integrated product development approach for Bio-MEMS", M.Sc. in Integrated Product Development (Chairman), University of Malta, 2014.

Saviour Busuttill, "A decision support system for manufacturing system design in integrated product development", M.Sc. in Integrated Product Development, University of Malta, 2013.

Joseph Swain, "Modular, reconfigurable automation system: an industrial case study", M.Sc. in Integrated Product Development, University of Malta, 2013.

Mario Mifsud, "Guidelines for fabricating micro components by compression moulding", M.Sc. in Integrated Product Development, University of Malta, 2009.

Ian Attard, "Process development for the manufacture of composite cabin and cargo panels", M.Sc. in Integrated Product Development, University of Malta, 2008.

Robert Bezzina, "The development of an intravenous administration set that is compatible with the pumps of various competitors", M.Sc. in Integrated Product Development, University of Malta, 2008.

Hermann Borg, "Product development of die bonder options", M.Sc. in Integrated Product Development, University of Malta, 2008.

Donald Camilleri, "Improving granulation bay changeover time by analyzing a wash-in-place system on a fluid bed drier machine", M.Sc. in Integrated Product Development, University of Malta, 2008.

Anthony Caruana, "Automation considerations for the assembly of a product family", M.Sc. in Integrated Product Development, University of Malta, 2008.

Godwin Cutajar Kinsella, "Capitalizing on the production preparation phase in the product development process", M.Sc. in Integrated Product Development, University of Malta, 2008.

Samantha Runco, "An investigation of the implementation of rapid technologies", M.Sc. in Integrated Product Development, University of Malta, 2008.

Keith Zammit, "Improving the energy efficiency of a control cabinet air conditioner through the use of variable refrigerant flow capacity control", M.Sc. in Integrated Product Development, University of Malta, 2008.

Other Postgraduate Thesis Examinations

Aleksandra B. Postawa, "Sensing and force control in robotic grasping: an analytical study of improvements to the UOM device", Diploma thesis for the Dipl.-Ing. Degree at Technische Universität Berlin, 2006.

Education and Research at the University of British Columbia

Ph.D. student, Department of Physics, University of British Columbia, Vancouver, Canada, September 1993 to April 1998:

The research at the UBC Department of Physics involved an experiment to measure the neutron-neutron scattering length from an analysis of the photon energy spectrum from the reaction $\pi^-d \rightarrow \gamma nn$.

Designed, and supervised the construction of, portions of the experimental equipment to high specifications.

Led the data analysis and component modeling portions of the experiment, in an international collaboration of 18 scientists.

Westcott Memorial Fellow, TRIUMF, Canada's National Meson Facility, September 1996 to August 1997. (One fellowship awarded each year).

Full scholarship support from the Institute for Nuclear Theory of the University of Washington, for the Eighth Nuclear Physics Summer School, Pack Forest Preserve, Mt. Rainier, Washington, 10 to 21 June, 1996.

Average Course Grade Attained: 89.0%, Thesis Standing: Category 1

Graduate Research Assistant (full-time), Department of Physics, University of British Columbia, Vancouver, Canada, May 1993 to April 1998.

M.Sc. student, Department of Physics, University of British Columbia, Vancouver, Canada, September 1992 to August 1993. Transferred directly to the Ph.D. programme in August 1993.

Graduate Research Assistant (full-time), Department of Mechanical Engineering, University of British Columbia, Vancouver, Canada, December 1991 to June 1992:

Participated in a major collaborative research project between the Industrial Automation Laboratory at UBC and a leading fish processing company in Richmond, B.C., with the aim of automating the fish head-cutting process.

M.A.Sc. student, Department of Mechanical Engineering, University of British Columbia, Vancouver, Canada, September 1989 to September 1991:

The research involved the design, construction and testing of an innovative conformable robotic gripper that utilized less actuators than it had degrees of freedom; an analysis and experimentally-validated simulation of the planar grasping process; and the proposal of a new measure for dexterity in robotic grasping.

Canadian Commonwealth Scholar, September 1989 to September 1991.

(This was highly competitive: a single scholarship, for all disciplines, was offered to Malta in 1989).

Average Course Grade Attained: 86.4%, Thesis Grade: 90%.

Professional Affiliations

IEEE

Senior Member, June 2011 to date.

Member, July 2000 to June 2011.

Student Member, 1991 to 1995.

American Society of Mechanical Engineers (ASME)

Member, October 1999 to date.

Associate Member, June 1991 to September 1999.

Society of Manufacturing Engineers (SME)

Member, March 2011 to date

American Physical Society (APS)

Member, December 2001 to date.

Junior Member, December 1998 to November 2001.

Student Member, September 1995 to November 1998.

Chamber of Engineers (COE) (Malta)

Corporate Member, October 1999 to date.

Teaching Profile

General

Currently responsible for lecturing in the areas of Engineering Mechanics, and of Robotics within the Faculty of Engineering of the University of Malta.

Postgraduate Modules

Current

Responsible for developing and teaching part of the postgraduate module *ENR5006 Research Methods for Engineering* for the *MSc programme in Engineering* run by the Faculty of Engineering of the University of Malta, October 2009 to date.

Past

Responsible for developing and teaching the postgraduate module *MFE5104 Industrial Automation and Robotics* for the *MSc programme in Integrated Product Development* run by the Faculty of Engineering of the University of Malta, February 2006 to June 2015.

Responsible for developing and teaching part of the postgraduate module *ENR5003 Nano and Micro Technologies* for the *MSc programme in Integrated Product Development* run by the Faculty of Engineering of the University of Malta, February 2006 to June 2010.

Examiner for the module *ENR5007 Engineering Seminar* for the *MSc programme in Engineering* run by the Faculty of Engineering of the University of Malta, 23 April 2010.

Coordinator of the module *MGT5058 Technology Entrepreneurship* for the *MSc programme in Integrated Product Development* run by the Faculty of Engineering of the University of Malta, February 2006 to June 2009.

Responsible for developing part of the postgraduate module *E6: Robotics and Manufacturing Automation* as part of the *FastAhead* project funded under the EU Asia-Link programme. The project was coordinated by the University of Strathclyde of Glasgow, Scotland, and included partners from Malta, France, China, Pakistan and Bangladesh.

Delivered the entire *FastAhead* (see above) postgraduate module *E6: Robotics and Manufacturing Automation* to students at Huazhong University of Science and Technology (HUST) in Wuhan, China; and at the Northwestern Polytechnic University (NPU) in Xi'an, China, September 2008.

Undergraduate Modules

Current

Responsible for developing and teaching the undergraduate module *MEC4100 Robotics* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2016 to date.

Responsible for re-developing and teaching the undergraduate module *MEC1101 Engineering Mechanics – Statics* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2017 to date.

Past

Responsible for developing and teaching the undergraduate module *MFE3107 Industrial Automation* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2011 to June 2017.

Prof. Dr Ing. Michael A. Saliba

Responsible for developing and teaching the undergraduate module *MFE1202 Fundamentals of Manufacturing and Machining* for the *B.Eng.(Hons) programme*, run by the Faculty of Engineering of the University of Malta, February 2009 to June 2017.

Responsible for developing and teaching the undergraduate module *MFE4101 Robotics* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2011 to June 2016.

Responsible for developing and teaching the undergraduate module *MFE4006 Industrial Robotics* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 1998 to June 2011.

Responsible for developing and teaching the undergraduate module *MFE1002 (formerly MFE2001) Machining Processes and Analysis* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, February 2000 to June 2008.

Responsible for developing and teaching the undergraduate module *MFE2003 Manufacturing Systems* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, February 2002 to June 2004.

Responsible for developing and teaching part of the undergraduate module *ENR1109 Engineering Science – Manufacturing and Materials* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2003 to January 2008.

Responsible for developing and teaching the undergraduate module *ENR3001 Public Speaking and Presentation* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2004 to June 2010.

Responsible for developing and teaching the undergraduate module *MFE4007 Manufacturing Automation* for the *B.Eng.(Hons) programme* run by the Faculty of Engineering of the University of Malta, October 2005 to June 2011.

Undergraduate Final Year Projects

Regularly propose and supervise undergraduate final year projects for the *B.Eng.(Hons)* degree at the University of Malta, in the areas of Robotics and Automation (**56 projects**, 1998 to date).

Reader or assessor of various other undergraduate final year projects, 1998 to date.

Other Presentations

Member of discussion panel, Quality Control in Engineering, Meet Your Employer 17 - The UESA Conference, University Engineering Students Association (UESA), Valletta, 3 April 2017.

M. A. Saliba, "Delivering an Effective Presentation", IEEE Student Branch (Malta) Student Professional Awareness Conference, University of Malta, 11 March 2010.

M. A. Saliba, "Technical Report Writing", IEEE Student Branch (Malta) Student Professional Awareness Conference, University of Malta, 5 March 2008.

M. A. Saliba, "Liberate Your Public Speaking Skills!", IEEE Student Branch (Malta) Student Professional Awareness Conference, University of Malta, 30 March 2007.

M. A. Saliba, "Experience of a Planning and Development Engineer at Air Malta", University Engineering Students Association (UESA) Aerospace Engineering Conference, University of Malta, 2 April 2003.

M. A. Saliba, "Improve Your Public Speaking", IEEE Student Branch (Malta) Student Professional Awareness Conference, University of Malta, 12 March 2003.

M. A. Saliba, "Robotics – Industry and Academia", IEEE and UESA Student Professional Awareness Conference, University of Malta, 13 March 2002.

M. A. Saliba, "Honing Your Skills in Public Speaking", Communications Skills Seminar for the Graduating Engineer, University of Malta, 2 March 2002.

Other Teaching in Malta

Delivered lectures in *Industrial Robotics* to Maltese industry as part of the *Advanced Technical Manufacturing* continuing development programmes of the Maltese Employment and Training Corporation (ETC), March – April 2008, March – April 2006, October – November 2005, November – December 2004, May – June 2004, June – July 2003.

Delivered an advanced course on *Industrial Equipment* (November 2014, May 2013, June 2008); on *Missiles and Aerospace Systems and Sub-Systems* (November 2014, May 2013); and on *Radioactive and Special Nuclear Materials* (November 2014), as part of a *Targeted Dual-Use Commodity Identification Training Programme* for Selected Officials of the Malta Customs and Trade Departments. Commissioned by Argonne National Laboratory, USA, in support of the US National Nuclear Security Administration.

Delivered introductory courses on *Industrial Equipment* as part of a *Dual-Use Commodity Identification Training Programme* for Officials of the Malta Customs and Trade Departments, the Malta Police and the Armed Forces of Malta, November 2006, May 2006. Commissioned by Argonne National Laboratory, USA, in support of the US National Nuclear Security Administration.

Delivered a course in *Industrial Robotics* as part of the continuing development programme of the Maltese Chamber of Engineers, October to December 2000.

Final Year Project Adjudication Board Member, Electronics Technicians Course, Fellenberg Training Centre, Paola, Malta, June 2000 to June 2002.

Lecturer (*Robotics*) for the City and Guilds Certified Course in *Computer Aided Engineering*, Mikilang Sapiano Technical Institute, Paola, Malta, January 2000 to June 2003. (Through the Malta University Services Ltd.)

Teaching in Vancouver (1990 – 1997)

Graduate Teaching Assistant (part-time), Department of Physics, University of British Columbia, Vancouver, Canada, September 1992 to December 1997:

Provided individual tutoring to students, explained and supervised laboratory experiments, prepared and presented class tutorials, graded examinations and assignments, and prepared and developed science demonstration apparatus.

Nominated for a 1997/98 University Graduate Student Teaching Award.

Completed a 21-hour Instructional Skills Workshop for Teaching Assistants in the Faculty of Science of the University of British Columbia, Vancouver, Canada, May 1993 to June 1993.

Graduate Teaching Assistant (part-time), Department of Mechanical Engineering, University of British Columbia, Vancouver, Canada, September to December 1990:

Explained, supervised and graded laboratory experiments in Control Engineering.

Private Physics and Math Tutor (part-time), as a member of the Teachers' Tutoring Service of British Columbia, September 1996 to June 1997.

Contribution to University Affairs and Administration

University

Director of the University Engineering Workshop, October 2012 to May 2016.

Rector's Delegate for MCAST and Industry Liaison, October 2008 to September 2013.

Member of Council of the University of Malta, as representative of Senate, June 2007 to May 2009.

Member of Senate of the University of Malta, as representative of the Faculty of Engineering, March 2005 to May 2009.

Member of the Senate Sub-committee for the Implementation of the Students' Charter, September 2009 to August 2010.

President of the University of Malta Academic Staff Association (UMASA), June 2009 to June 2010.

Council Member and Secretary of the University of Malta Academic Staff Association (UMASA), March 2003 to June 2009.

Chairman of the UMASA Working Group to draft a new Collective Agreement document (union's proposal) for the academic staff at the University of Malta, 2003 to 2009.

Registered UMASA as a trade union under the national Employment and Industrial Relations Act, 5 May 2004.

Member of the UMASA team participating in the industrial tribunal process to resolve issues pertaining to trade union representation between UMASA, the Malta Union of Teachers (MUT) and the University, February 2005 to January 2007.

Member of the UMASA Negotiation Team for the new Collective Agreement for the academic staff at the University of Malta, May 2007 to January 2009.

Signatory of the documents "Collective Agreement for Academic Staff of the University of Malta and Academic Staff of the Junior College", "University of Malta Manual of Conduct and Procedures", and "Agreement to Facilitate the Implementation of the Collective Agreement for Academic Staff of the University of Malta and Academic Staff of the Junior College", 21 January 2009.

Contributed to various consultation meetings with the Maltese National Council for Higher Education regarding national policies and legislation pertaining to higher education.

Faculty

Deputy Dean of the Faculty of Engineering, May 2015 to September 2018.

Chairman of the *B.Eng.(Hons) in Mechanical Engineering* Board of Studies, May 2015 to September 2018; Member of the Board, October 2012 to September 2018.

Chairman of the *M.Sc. by Research* Board of Studies, Faculty of Engineering, University of Malta, October 2016 to January 2018. Member of the Board, September 2009 to August 2011, February 2018 to September 2018.

Chairman of the *MSc – Integrated Product Development* Board of Studies, October 2012 to May 2016.

Member of the Faculty Board of the Faculty of Engineering of the University of Malta, as representative of the Department of Manufacturing Engineering, 1999 to 2007; as Head of Department, 2012 to 2016. Invited member as Deputy Dean, 2016 to 2018.

Chairman, Workshop on the Degree / Diploma Structure in the Faculty of Engineering, 14 April 2010.

Prof. Dr Ing. Michael A. Saliba

Chairman of the Academic Affairs Focus Group, Faculty of Engineering, University of Malta, September 2009 to August 2010; Member of the Academic Affairs Focus Group, December 2001 to August 2010.

Member of the Research Ethics Committee, Faculty of Engineering, University of Malta, October 2004 to August 2010.

Member of the Postgraduate Sub-committee, Faculty of Engineering, University of Malta, February 1999 to September 2009.

Member of the Engineering Project Exhibition Sub-Committee, Faculty of Engineering, University of Malta, 1999 to 2006.

Founder, organiser and chairman of the Faculty of Engineering Research Seminar series, March 2002 to June 2008.

Spearheaded the setting up of the IEEE University of Malta Student Branch, January 2001.

Judge, Robot Wars, IEEE University of Malta Student Branch, annually, 2009 to date.

Developed and maintained the Faculty of Engineering website, 1999 to 2007.

Department

Leader of the Robotic Systems Laboratory (RSL) within the Department of Mechanical Engineering (formerly the Robotics and Industrial Automation Laboratory in the Department of Industrial and Manufacturing Engineering), 1998 to date.

Head of the Department of Industrial and Manufacturing Engineering, October 2012 to May 2016:

- Led the development of a detailed five year facilities and human resources plan for the department, and started its implementation;

- Developed detailed health and safety procedures for the department;

- Lead the evolution and improvement of the departmental lecturing contributions to the B.Eng.(Hons) and M.Sc.-IPD degrees;

- Lead and facilitate the department in creating partnerships and collaboration with industry and with other academic institutions in research and development;

- Carry out all other administrative and leadership duties pertaining to the position.

Organised the Department of Industrial and Manufacturing Engineering Research Days, Malta, 13 March 2009, 3 June 2010, and 4 February 2014.

Developed the Industrial-Partnered Undergraduate Final Year Project Policy for the Department of Manufacturing Engineering, 2002.

Edited the 3rd, 4th and 9th issues of the annual Department of Manufacturing Engineering newsletter (2001, 2002 and 2007), and co-edited the 5th issue (2003).

Contributed to the planning and setting up of new academic programmes led by the Department of Industrial and Manufacturing Engineering, such as the M.Sc.-IPD, and the Bachelor of Industrial Engineering.

Other Work Experience

Aviation

Planning and Development Engineer (full-time), Air Malta Company Ltd., Luqa, Malta, February 1986 to August 1989; October to November 1991.

Provided technical support for Air Malta's fleets of 737-200A and 720B aircraft, and for the JT8D-15A power plants on the 737s:

Evaluated and implemented FAA airworthiness directives and manufacturer service bulletins.

Developed aircraft and engine maintenance procedures.

Carried out troubleshooting of engineering problems.

Monitored general aircraft and engine performance; Monitored component reliability and carried out statistical interpretation of component performance data.

Assigned to specific projects, in both team and individual settings.

Worked in liaison with personnel from various internal departments and from all levels of the company, including senior management, as well as with external overhaul agencies, product manufacturers, and airport authorities.

Attended the 737 Specific Performance Course, Boeing Flight Operations Training Centre, Seattle, Washington, 19 - 23 September, 1988.

Attended the International Federation of Airworthiness (IFA) International Conference on Propulsion and Auxiliary Power, Irvine, Scotland, 1 - 2 September, 1988.

Attended the General Performance Engineering Course, Boeing Flight Operations Training Centre, Seattle, Washington, 8 - 26 August, 1988.

Student-trainee, Swissair Aircraft Performance Centre, Zurich, Switzerland, 16 August to 31 October, 1986: Participated in an international student exchange program organized by I.A.E.S.T.E., the International Association for the Exchange of Students for Technical Experience.

Student Worker, Air Malta Company Ltd., Malta, February 1981 to February 1986:

Five work phases, each of five months' duration, spent in various departments within the company, during the completion of the undergraduate degree in Mechanical Engineering.

Building Services

(With M. Muscat) Designed the Mechanical Building Services Systems for the new extension (two new floors) to be built on the University of Malta Junior College Building. Drew up the tender document and bill of quantities for the new systems, May 2007. Commissioned by Malta University Services Ltd.

(With M. Muscat and T. Leone Ganado) Designed the Mechanical Building Services Systems for the new extension (new floor) of the University of Malta Chemistry Building. The designs included provisions for state-of-the-art pharmacology laboratories. Drew up the tender document and bill of quantities for the new systems. Adjudicated the bids. Acted as consultant for the University during installation and commissioning of the new systems. Commissioned by Malta University Services Ltd., 2003 to 2007.

Other

Pupil Worker, Enemalta Corporation, Petroleum Division, Malta, July 1980 to February 1981.

Extra-curricular Activity (selected)

Communication and Leadership

Member of **JCI – Malta**, the Maltese NOM (National Organization) of JCI (Junior Chamber International), August 1999 to date.

(JCI is a worldwide organization active in more than 8,000 chapters in 123 nations. Its mission is to contribute to the advancement of the global community by providing the opportunity for young people to develop the leadership skills, social responsibility, entrepreneurship, and fellowship necessary to create positive change. JCI – Malta is affiliated to the local Chamber of Commerce.)

President of LOM de Wignacourt, one of the two local clubs of JCI – Malta, January 2003 to December 2004.

JCI Senator (honorary lifelong membership) since October 21, 2004.

Led and co-organized several projects for JCI – Malta between 1999 and 2005. Awarded a Certificate of Merit for Outstanding Contribution during 1999, a Certificate of Distinction for Outstanding Contribution during 2001, an Award of Outstanding LOM de Wignacourt Member during 2002, an Outstanding LOM Project Award in June 2002, and the Most Outstanding NOM Board Member Award for 2003. Organized and led Public Speaking Training Seminars in October 2000, March 2004 and July 2005. Regularly participated in seminars, organized by JCI – Malta, on various topics in business, leadership, communication and other areas of personal and professional development.

Member of **Walter Gage Toastmasters public speaking club**, (the University of British Columbia chapter of Toastmasters International), October 1989 to October 1994.

(Toastmasters International is a worldwide organization with more than 345,000 members active in over 15,900 chapters in 142 countries. It is a movement devoted to making effective oral communication a worldwide reality.)

President of Walter Gage Toastmasters club, April 1992 to April 1993.

Selected Accomplishments in Sports

University of Malta Chess Champion, 1982. Placed second in 2005.

3rd Place, UBC 1st Division Intramural Table Tennis Tournament, February 1990;

Winner, UBC 2nd Division Intramural Table Tennis Tournament, November 1989;

Founder member of the Air Malta Table Tennis team. Winners of the National Third Division and National Industries team championships, Malta, 1988-89;

Member, University of Malta Table Tennis team, 1985-88.

Strong club-level competitive runner (1979 – 1998). Best time for 5K: 16:53 (overall race winner), Running Room 5K Classic, Vancouver, May 1995.

**APPENDIX: The Robotic Systems Laboratory: Research and
Industrial R&D Collaboration led by Prof. Dr Ing. Michael A. Saliba**