

**Dr. Arash Mehdizadeh****Assistant Professor - Electrical & Electronics Engineering****Personal Information**

Nationality:	Australian
AU Joining Date:	2016
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Professional Information

Education:	- PhD in Electrical and Electronics Engineering (2009-2014) School of Electrical and Electronic Engineering The University of Adelaide, Australia (Dean's Commendation) - MSc in Data Science (2021-2023) College of Natural Sciences The University of Texas at Austin, USA (GPA: 4/4) - MSc in Computer Systems Eng., Computer Architecture (2005 –2008), Department of Computer Engineering and Information Technology, Amirkabir University of Technology, Iran (First Class) - BSc in Computer Hardware Engineering (2001 – 2005) Department of Computer Engineering and Information Technology, Amirkabir University of Technology, Iran (Honors)
Specialization:	- Data Science and Artificial Intelligence - Computational Biology - Computer Systems Engineering - Microelectronics and Embedded Systems Design - Biomedical Engineering
Current Academic Position:	- Assistant Professor - Electrical & Electronics Engineering
Current Professional Positions:	- IEEE Member (2004 – Present) - Engineers Australia Professional Member (2014 – Present) - The Chartered Institute for IT Professional Member (2023 – Present) - KCPC Scientific Committee (2016 – Present)

Previous Academic Positions Held:	- Postdoctoral research associate (Aug 2014 – Sept 2016) School of Computer Science and Software Engineering, The University of Western Australia, WA 6009, Australia, - Application of mathematical and computational methods to model biological systems. - Computational modelling of tendon homeostasis and pathology. - Research assistant (Nov 2008 – Aug 2014), PhD candidate, Centre for Biomedical Engineering (CBME), School of Electrical and Electronic Eng., The University of Adelaide, SA 5005, Australia, - Design, development, analytical and numerical evaluation, fabrication and ex-vivo evaluation of a recoil-resilient remotely adjustable luminal support for stenting applications. The new luminal support is developed utilizing MEMS technology and is capable of alternative remote actuation mechanisms in addition to the traditional angioplasty balloon expansion. - Research assistant (May 2011 – Jan 2012), visiting scholar Microsystems and Nanotechnology Group (MiNa), Department of Electrical and Computer Engineering, University of British Columbia (UBC), Vancouver, Canada, - Numerical and physical evaluation of a recoil resilient luminal support. - Fabrication of an active recoil resilient luminal support by μEDM technology. - Research associate (Jun 2009 – Jul 2014), Collaborated with several departments including Electrical, Mechanical, Civil and Chemical engineering, The University of Adelaide, SA 5005, Australia, Development, comparison, evaluation and application of optimization methods particularly meta-heuristic and evolutionary algorithms to: - Electrical & Electronic Eng. applications including VLSI design, Nano-scale transmission line design. - Biomedical Eng. applications including pumping performance optimization of a micro pump for targeted in-vivo drug delivery. - Biomedical Eng. applications including remote powering of biomedical implants using piezoelectric resonators. - Chemical Engineering applications including thermal energy estimation. - Mechanical Eng. including heat sink design. - Research assistant (Jan 2008 – Jul 2008), visiting scholar, School of Electrical and Computer Engineering, University of Tehran, Iran, - Development of resilient and efficient pair-wise key distribution schemes in wireless sensor networks.
Fellowships And Honors:	- (Spring 2025): Best Paper Award, 9th International Conference on Information System Design & Intelligent Applications (ISDIA-2025) - (Spring 2025): Finalist, 24th Sheikh Salem Al-Ali Al-Sabah Informatics Award, Kuwait Innovation Centre (Title: AI-Based Wearable Parkinson's Disease Monitoring) - (Spring 2024): Best Graduation Project Award, Australian University (Title: AI-Based Wearable Parkinson's Disease Monitoring)

	- (Fall 2023): Best Graduation Project Award, Australian University (Title: Oil Spill Detection Using Artificial Intelligence) - (Fall 2023): Public Voting Winning Project Award, Australian University (Title: Oil Spill Detection Using Artificial Intelligence) - (Spring 2023): Best Graduation Project Award by the Australian Embassy Kuwait, Australian University (Title: Sign Language Translation Using Artificial Intelligence) - (Fall 2022): Best Graduation Project Presentation Award by Industry, Australian University (Title: Electrical Muscle Stimulation Machine) - (Spring 2022): Best Graduation Project Award, Australian University (Title: Automated Attendance Robot Using Facial Recognition) - (2014): Dean's Commendation for Doctoral Thesis Excellence, The University of Adelaide, Australia - (2012): The ABEC 2012 Young Biomedical Engineer Prize by Engineers Australia, Australia - (2011): Research Abroad Scholarships grant to visit MiNa, UBC, Canada, The University of Adelaide, Australia. - (2011): BUPA Postgraduate Grant and AUGU/RC Heddle Award to visit MiNa, UBC, Canada, The University of Adelaide, Australia. - (2010): 3-Minute Thesis Competition finalist, Faculty of Engineering, The University of Adelaide, Australia. - (2009 – 2010): School of Electrical and Electronic Engineering team member and winner of Corporate Cup, South Australia, Australia. - (2008): International Postgraduate Research Scholarship (ASI) towards doctoral studies, The University of Adelaide, Australia. - (2008): Distinguished master's student, ranked second, Department of Computer Engineering and IT, Amirkabir University of Technology, Iran. - (2005): Distinguished undergraduate student, first class honors (among top 3%), Amirkabir University of Technology, Tehran, Iran. - (2005): Admitted in the MSc program without participating in the national entrance exam ranked among top 5% graduates, Amirkabir University of Technology, Tehran, Iran.
Teaching Experience:	- Lecturer/Assistant Professor (Sept 2016 – Present) Department of Electrical and Electronics Engineering, College of Engineering, Australian University, Kuwait, Curriculums Developed: - Diploma of Cybersecurity - Diploma of Networking - Diploma of Artificial Intelligence - Bachelor of Technology in Cybersecurity - Bachelor of Technology in Networking - Bachelor of Technology in Artificial Intelligence - Diploma of Biomedical Engineering - Bachelor of Biomedical Engineering

- Diploma of Electrical and Electronics Engineering
- Bachelor of Electrical and Electronics Engineering

Courses coordinated:

- Digital Signal Processing
- Signals and Control
- Communications Engineering
- Programmable Logic Controllers (PBL)

Projects in collaboration with industry:

- Bank Security System
- Control System of a Food Factory
- Brick Factory Automation System
- Confectionary Factory Automation System

- Digital Logic
- Fundamentals of Programming (C++)
- Introduction to Computing with C++ (PBL)

Projects in collaboration with industry:

- Yasmin Farms Site Maintenance Management System
- Australian University Facilities Management Systems (AuFDMaS)
- Library Management System (LMS)
- Telecommunication Site Visit Management System
- Automated Service Center Register (ASCER)
- ACK Automated Library System (ATLAS)
- Automated Student Registration System
- Patient-Doctor Information Management System (APIC)
- Automatic Advising System ACK (ADVISE-A)

- Analog Electronics
- Electromagnetism Fundamentals
- Instrumentation and Measurement
- Engineering Ethics
- Engineering Economics
- Graduation Project (PBL)

- Supervision and Leadership of Graduation Projects (Sep 2016 – Present)

- Classroom engagement analysis using vision and AI (2025)
- Origami-inspired wind turbine fabrication and IoT-based DC power monitoring (2025)
- AI-based wearable Parkinson's disease monitoring (2024)
- Oil spill detection using artificial intelligence (2023)
- Sign language translation using artificial intelligence (2023)
- Electrical muscle stimulation, EMS (2022)
- A smart rocking crib (2022)
- Automated attendance robot using facial recognition (2022)
- Anti pressure ulcer bed spread (2021)
- Real-time distance detection robot using computer vision (2021)
- Smart tracking shoes (2020)
- Law enforcement remote override system for service vehicles (2018)

- Smart entrance system (2017)
- **Part time Lecturer (Aug 2014 – Jan 2015)**
Faculty of Engineering, Computing and Mathematics, The University of Western Australia, WA 6009, Australia
 - Transport Phenomena
- **Teaching Assistant (Feb 2009 – Jul 2013)**
School of Mathematical Sciences, The University of Adelaide, SA 5005, Australia Courses spanning general topics on:
 - Linear Algebra
 - Single and multi-variable calculus
 - Statistics and probability
 - Differential equations
- Tutorial Classes:
 - Mathematics IM, IA and IB
- Lab Demonstrations:
 - Mathematics IA and IB Labs (MATLAB I, II)
- Consultations:
 - All first and second-year mathematics units including:
 - Mathematics IM, IA, IB, IIA and IIB
 - Mathematics for Information Technology I
 - Introduction to Financial Mathematics I
 - Applications of Quantitative Methods in Finance I
- **Teaching Assistant – Part time lecturer (Feb 2009 – Mar 2011)**
School of Electrical and Electronic Engineering, The University of Adelaide, SA 5005, Australia
- Tutorial classes and Lab Demonstrations:
 - Advanced Electromagnetism
 - Digital Logic Design and Microelectronics
 - VLSI and Data Path Systems
 - Automated Electronic Design (VHDL, Verilog)
 - Project Management
 - Electrical and Electronic Engineering 1A
- **Private and Remote Tuition (Feb 2013 – Jun 2013)**
Adelaide – Melbourne, Australia
 - Mathematics IM, IA and IB
 - Linear Algebra and Differential Equation
- **Teaching Assistant (Sept 2005 – Sept 2008)**
Department of Computer Engineering and Information Technology, Amirkabir University of Technology, Tehran, Iran
- Tutorial Classes:
 - Microprocessor Systems
 - Digital Electronics
 - Hardware Modeling languages (VHDL)
 - VLSI
 - Logic Design

	- Computer Aided Design of VLSI Circuits - Microcontrollers - Advanced Computer Programming
Industrial Experience:	- Senior Embedded Systems Design Engineer (Mar 2008 – Oct 2008): Xarrin Advanced Technologies, Tehran, Iran - Development of an embedded system integrating VOIP and PSTN services, part of a project aimed to integrate triple-play multimedia services into one product. - R&D Engineer (Jun 2004 – Jul 2008): Department of Computer Engineering and Information Technology, Amirkabir University of Technology, Tehran, Iran - Developing the reconfigurable functional unit of an extensible processor. - Development and optimization of crosstalk-aware global and detailed placement algorithms employed in electronic design automation. - Design, development and implementation of multi-layer crosstalk-aware detailed routers, participated in Automatic Tool for Layout Synthesis (ATLAS) project, a UNIX based VLSI design automation tool.
Research Interest:	- Artificial intelligence and data science - Microelectronics and embedded systems design, VLSI circuits and systems design, crosstalk analysis, modelling, and management in electronic circuits. - Biomedical Engineering, spanning several areas including computational biology and application of NEMS/MEMS technologies in development of biomedical devices, targeted drug delivery and active smart implants. - Optimization, Optimization methods, particularly meta-heuristic and evolutionary based algorithms, and their comparison and application to different disciplines ranging from medicine to engineering. - Renewable and Sustainable Energy
Research Grants:	- Applied Research Grant, Kuwait Foundation for the Advancement of Sciences (KFAS), Fall 2024, PI (Title: A Holistic Framework for Academic Performance Monitoring and Advising Using Deep Learning) - Internal Research Grant, Australian University, Spring 2023, PI (Title: Design, Simulation, and implementation of Battery Management Systems) - Internal Research Grant, Australian University, 2023, PI (Title: PBL Classroom Management Using Computer Vision and Artificial Intelligence) - Internal Research Grant, Australian University, 2021, PI (Title: Real-time Distance Detection and Enforcement System Using Computer Vision) - Applied Research Grant, Kuwait Foundation for the Advancement of Sciences (KFAS), 2018 Co-I, (Title: Autonomous and portable measuring system for rheological properties of Newtonian and non-Newtonian Fluids) - Internal Research Grant, Australian University, 2017, Co-I (Title: Design and assembly of an automated marsh funnel for rapid measurement of apparent Viscosity, plastic viscosity, and yield point of fluids) - Research seed grant, Research Abroad Scholarships, 2011. - Research seed grant, BUPA Postgraduate Grant and AUGU/RC Heddle Award, 2011.

	- Travel grant, An Efficient Heterogeneous Reconfigurable Functional Unit for an Adaptive Extensible Processor, 2007. - Research grant, Crosstalk minimization in physical layout synthesis of VLSI circuits, 2005.
Research Publications and Conferences:	- M. Farhat, A. Mehdizadeh, et al., "Origami-inspired urban wind turbines: Scalable bladeless designs for decentralized renewable energy", Green Technologies and Sustainability, 2025. - A. Mehdizadeh, et al., "Evaluation and Improvement of ELECTRA-small and DeBERTa models on Adversarial QA Examples", in Proceedings of 9th International Conference on Information Systems Design & Intelligent Applications (ISDIA), 2025. - A. Mehdizadeh, et al., "Thermal Comfort, Humidity, and Air Quality in Passive Cooling Systems Using Phase Change Materials", in Proceedings of the 2nd GCC International Conference on Industrial Engineering and Operations Management, Muscat, Oman, 2024. - N. Ghareeb, A. Alanazi, A. Sedaghat, M. Farhat, A. Mehdizadeh, et al., "Integrating experimental and theoretical approaches for enhanced machine learning modeling of solar radiation", Engineering Science and Technology, an International Journal, 2025. - M. Al-Khiami, A. Sedaghat, S. Soleimani, A. Mehdizadeh, " Engineering Science and Technology, an International Journal", in Proceedings of the 10th International Conference on Sustainable Engineering (ICEE 2026), Sydney, Australia, 2026. - A. Barakati, A. Mehdizadeh, et al., "Machine Learning for Legal Contract QA: Analyzing and Enhancing ELECTRA with Adversarial Triggers", in Proceedings of the 2nd GCC International Conference on Industrial Engineering and Operations Management, Muscat, Oman, 2024. - A. Nasser, A. Hussain, A. Mehdizadeh, "AI-Based Wearable Parkinson's Disease Monitoring", International Conference and Forum on Assistive Technologies for Special Needs (ASTN24), 2024. - A. Sedaghat, R. Kalbasi, R. Narayanan, A. Mehdizadeh, et al., "Integrating solar PV systems for energy efficiency in portable cabins: A case study in Kuwait", Solar Energy, 2024. - A. Sedaghat, S. M. Soleimani, M. I. Al-Khiami, M. Sabati, W. K. Hussam, H. J. Salem, M. Rasul, R. Narayanan, M. M. K. Khan, M. A. Malayer, A. Mehdizadeh, "Case studies on energy performance of walling materials in various regions", International Journal of Environmental Science and Technology, 2024. - A. Sedaghat, A. Mehdizadeh, et al., "Implementing Cool Roof and Bio-PCM in Portable Cabins to Create Low-Energy Buildings Suitable for Different Climates", Journal of Sustainability, 2023. - A. Sedaghat, H. Salem, W. K. Hussam, A. Mehdizadeh, et al., "Exploring energy-efficient building solutions in hot regions: A study on bio-phase change materials and cool roof coatings", Journal of Building Engineering, 2023.

- N. Firouzkouhi, A. Amini, A. Bani-Mustafa, A. Mehdizadeh, et. al, "Generalized fuzzy hypergraph for link prediction and identification of influencers in dynamic social media networks", Journal of Expert Systems with Applications, 2023.
- R. Soleimanpour, M. H. Yassin, A. Mehdizadeh, D. Chronopoulos, "Locating Cracks in Isotropic Plates Using Nonlinear Guided Waves", Journal of Applied Acoustics, 2023.
- A. Sedaghat, A. Mehdizadeh, et al., "Development of Novel Portable Cabins for Low Energy Buildings Research in Kuwait", The First GCC Engineering Symposium (GCCENG23), 29-31 October 2023, Kuwait University, Kuwait.
- A. Sedaghat, H. Salem, W. K. Hussam, A. Mehdizadeh, et al., "Experimental Study on Cool Roof Methods for Two Identical Portable Cabins in the State of Kuwait", Proc. International Conference on Mechanical, Automotive and Mechatronics Engineering (ICMAME 2023), 29-30 April 2023, Dubai, UAE.
- A. Sedaghat, H. Salem, Wisam K. Hussam, A. Mehdizadeh, et al., "Development of a Novel Low-Energy Building: Effects of Climates and PCM Materials", 11th International Conference on Indoor Air Quality, Ventilation & Energy Conservation in Buildings (IAQVEC2023), 20–23 May 2023, Tokyo, Japan.
- A. Sedaghat, A. Fadi, A. Eilaghi, A. Mehdizadeh, et al., "Optimization of Capacity Factors Based on Rated Wind Speeds of Wind Turbines", Journal of Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 2020.
- A. Mehdizadeh, BS. Gardiner, M. Lavagnino, DW. Smith, "Effect of Collagen Length Distribution and Timing for Repair on the Actie TGF-beta Concentration in Tendon", Connective tissue research, 2018.
- A. Mehdizadeh, et al., "Predicting tenocyte expression profiles and average molecular concentrations in Achilles tendon ECM from tissue strain and fiber damage", Journal of Biomechanics and Modeling in Mechanobiology, 2017.
- A. Mirsepahi, A. Mehdizadeh, "Comparison of Inverse Modelling and Optimization-Based Methods in the Heat Flux Estimation Problem of an Irradiative Dryer/Furnace", Journal of Computational Science, 2017.
- A. Mehdizadeh, et al., "Tendon ECM Composition: A Quantitative Approach", under preparation for submission to PLOS Computational Biology, 2025.
- A. Mehdizadeh, et al, "Hemodynamic risk assessment of a recoil resilient luminal support by computational fluid dynamics", Journal of Biomechanics, in preparation, 2025.
- A. Mehdizadeh, et al, "Alternative actuation methods of a recoil resilient luminal support, a theoretical, numerical and experimental framework", Journal of Micromechanics and Microengineering, in preparation, 2025.
- A. Mehdizadeh, et al, "Design, optimization and numerical evaluation of a novel corrugated micro-diaphragm for drug delivery", Journal of Biomechanics, in preparation, 2025.

- S. Young, B. Gardiner, A. Mehdizadeh, et al., "Adaptive Remodeling of Achilles Tendon: A Multi-scale Computational Model", Plos Computational Biology, 2016.
- A. Mehdizadeh, et al., "Predicting Tendon ECM Composition from Tenocyte Strain and Fiber Damage", presented at: International Symposium on Ligaments & Tendons XV, Orlando, USA, 2016.
- A. Mehdizadeh, et al., "A recoil resilient lumen support, design fabrication and mechanical evaluation", Journal of Micromechanics and Microengineering, vol. 23, p. 065001, 2013.
- A. Mehdizadeh, et al., "A Novel Stent for Recoil Resilience", presented at: Australian Biomedical Engineering Conference 2012 (IEEE 2012).
- M. K. Kopaei, A. Mehdizadeh, et al., "A novel hybrid approach for wireless powering of biomedical implants", International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP 2013), 2013.
- A. Mehdizadeh, et. al., "An Efficient 60 GHz Resonator Using Harmony Search", RAICS 2011, pp. 369-372, Trivandrum, India, November 2011.
- A. Mehdizadeh, et. al., "Optimal Design of an Offset Strip Fin Heat Sink Using Harmony Search", Chemeca 2010, Adelaide, Australia, September 26-29, 2010.
- A. Miremadi, A. Mehdizadeh, et. al., "Taguchi Based Performance Analysis of an Offset Strip Fin Heat Sink", Chemeca 2010, Adelaide, Australia, September 26-29, 2010.
- A. Mehdizadeh, M. Saheb Zamani, "A Novel Crosstalk Estimator after Placement", in Advances in Computer Science and Engineering, Vol. 6, H. Sarbazi-Azad, et. al, Springer Berlin Heidelberg, pp. 934-937, 2009.
- A. Mehdizadeh, M. Saheb Zamani, H. Shafiei, "An Efficient Method to Estimate Crosstalk after Placement Incorporating a Reduction Scheme", in International Symposium on VLSI, ISVLSI '08. IEEE Computer Society Annual, pp. 233-238, 2008.
- H. Shafiei, A. Mehdizadeh, A. Khonsari, M. Ould-Khaoua, "A Combinatorial Approach for Key-Distribution in Wireless Sensor Networks", in IEEE Global Communications Conference, IEEE GLOBECOM 2008, New Orleans, LA, USA, pp. 1-5, 2008.
- A. Mehdizadeh, M. Saheb Zamani, "Proposing an Efficient Method to Estimate and Reduce Crosstalk after Placement in VLSI Circuits", in The sixth ACS/IEEE International Conference of Computer Systems and Applications (AICCSA-08), Doha, Qatar, pp. 61-68, 2008.
- H. Shafiei, A. Mehdizadeh, S. Pourmozafari, M. Ould-Khaoua, "Quantifying Fault Patterns on Irregular Mesh-based Network-on-Chip", in The sixth ACS/IEEE International Conference of Computer Systems and Applications (AICCSA-08), Doha, Qatar, 2008 (received acceptance notification on Dec 19th, 2007).
- A. Mehdizadeh, M. Ghavami, M. Saheb Zamani, F. Mehdipour, "An Efficient Heterogeneous Reconfigurable Functional Unit for an Adaptive Extensible Processor", in Proc. of 15th Annual IFIP International Conference on Very Large-Scale Integration (VLSI-SoC), Atlanta, USA, pp. 151-156, 2007.

	- A. Mehdizadeh, M. Ghavami, H. Pedram, "Developing Intrinsically Testable Asynchronous Template Models Using PSL", in Proc. of 5th IEEE East-West Design & Test International Symposium, Yerevan, Armenia, pp 678-681, 2007. - A. Mehdizadeh, et al., "Performance Enhancement of an Adaptive Dynamic Extensible Processor by Using a Heterogeneous Reconfigurable Functional Unit", in Proc. of International SoC Design Conference (ISOCC-07), Seoul, Korea, pp. 251-254, 2007. - M. Ghavami, A. Mehdizadeh, et al. I, "An Efficient Heterogeneous Architecture for the Reconfigurable Functional Unit of an Extensible Processors", 12th International CSI Conference, 2007, The National University of Iran, Tehran, pp. 1112-1119, 2007 (In Farsi). - A. Kardan, A. Mehdizadeh, M. Ghavami, "SystemC for Designers", (A book on the hardware description language SystemC including an in-depth discussion on the issue of Transaction Level Modeling), Nass Computer Publications, Tehran, Iran, 2007. - M. K. Akbari, A. Mehdizadeh, M. Khosraviani, "Parallel Processing, From the Ground Up", (A book on parallel and high-performance computing), Amirkabir University Publications, Tehran, Iran, 2007.
College Service including committee Membership:	- Internal: KCPC coach - Research and faculty development committee - Scheduling committee - Developed an automated scheduler for the College of Engineering - PBL committee (Head) - Developed the LO framework of all PBL courses at the College of Eng. - Developed a comprehensive students' guide to PBL - Curriculum committee (Head) - Developed six new curricula in the fields of Artificial Intelligence, Networking and cybersecurity - Developed two new curricula in the field of Biomedical Engineering. - Participated in developing three new curricula in the field of Electrical and Electronics Engineering - Credit transfer committee - Student appeals and complaints committee
National Service:	- External: KCPC Scientific Committee
College Committees:	- Research and faculty development committee - Scheduling committee - PBL committee - Curriculum committee - Credit transfer committee - Student appeals and complaints committee