

Seid Miad Zandavi

Curriculum Vitae

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My research interests include Artificial Intelligence (AI) into image processing, uncertain systems, big data, health monitoring and bioinformatics. I am personable and astute scientist with proven time-management and collaborative skills. I have proven strong academic background, knowledgeable and keen graduate with *Machine Learning* and *Deep Learning* techniques in both theoretical and practical schemes.

Academic Positions

2020–Present **Postdoctoral Research Associate**, *School of Biotechnology and Biomolecular Sciences (BABS)*, University of New South Wales (UNSW Sydney), NSW 2052, Australia.

Research: single-cell computational genomics, personalised health monitoring and computational biomarker discovery in cancer

2019–2020 **Research Assistant**, *School of Biotechnology and Biomolecular Sciences (BABS)*, University of New South Wales (UNSW Sydney), NSW 2052, Australia.

Research: Integrative Computational Biology, Cancer Informatics

2018–2020 **Research Assistant**, *School of Computer Science*, The University of Sydney, NSW 2006, Australia.

Research: Single Image Super Resolution, CNN, Heuristic Optimization Algorithm

Education

2017–2020 **Ph.D.**, *Computer Science*, The University of Sydney, NSW 2006, Australia.

Thesis Topic: Indoor Autonomous Flight Using Deep Learning-Based Image Understanding Techniques

2012–2014 **M.Sc.**, *Aerospace Engineering*, Sharif University of Technology Tehran, Iran.

Thesis Topic: Multidisciplinary Design Optimization of a Guided Flying Vehicle considering Uncertainties

Research Interests

- AI and Integrative Computational Biology
- AI and Cancer Informatics
- AI - Rare and Complex Disease
- Image Processing and Signal Processing
- Convolutional Neural Network
- Heuristic Optimization Algorithm

Awards & Scholarship

- 2020 Best Tutoring Award.
- 2019 Postgraduate Research Support Scheme.
- 2019 Professional Engineers, Engineers Australia.
- 2018 The University of Sydney Nano Institute Postgraduate Supplementary Scholarship.
- 2018 3M Thesis Presentation, The University of Sydney.
- 2017 Postgraduate Research Support Scheme.
- 2017 Engineering and Information Technologies Research Scholarship, The University of Sydney.
- 2017 Outstanding Reviewer Award, ISA Transaction, Elsevier.
- 2014 Top-ten students in M.Sc. degree in Aerospace Engineering Department, Sharif University of Technology.
- 2013 Rank 1 in M.Sc. degree in Flight Dynamic and Control Engineering, Aerospace Engineering Department, Sharif University of Technology.

Grant

- 2019 **Fast and scalable denoising and integration of single cell multi-omics with single processing analysis**, *School Research Grant*, School of Biotechnology and Biomolecular Sciences (BABS), The University of New South Wales, \$100,000.
- 2018 **Autonomous Indoor Flight**, *School Research Grant*, School of Computer Science, The University of Sydney, \$5,000.

Industry Project

- 2019–Present **Knowledge-Base Approaches to Identify Breast Cancer**, *BCAL diagnostics*, www.bcaldiagnosics.com.
- 2019–Present **Personalised Nutritional Recommendation System based on CGM and Food Intake**, *Nutromics*, www.nutromics.com.au.

International Talk

- 2017 **Deep Learning and Robotics**, *Zhejiang University, Robotics Institute*, Hangzhou, Zhejiang Province, P.R. China.
Topic: The performance of Artificial Intelligence in the field of Robotics.
- 2014 **Heuristic Filter**, *Department of Aerospace Engineering*, Sharif University of Technology.
Topic: Heuristic Filters for Nonlinear Systems State Estimation.

Publication

Journal Papers

- 2021 **Seid Miad Zandavi**, Fatemeh Vafae. Fast and scalable denoising and integration of single cell (multi-)omics with power spectral analysis. *Nature Method*, (Under preparation).

- 2021 **Seid Miad Zandavi**, Fatemeh Vafaei, Taha Rashidi. Forecasting the Spread of Covid-19 Under Control Scenarios Using LSTM and Dynamic Behavioral Models. *IEEE Transaction on Cybernetics*, (Under review).
- 2021 **Seid Miad Zandavi**, Vera Yuk Ying Chung, Ali Anaissi. Control Design of Autonomous Quadcopter Using Deep Learning Based Image Understanding Techniques. *IEEE Transaction on Neural Networks and Systems*, (Under review).
- 2021 **Seid Miad Zandavi**, Vera Yuk Ying Chung, Ali Anaissi. PIDA: Smooth and Stable Flight Using Stochastic Dual Simplex Algorithm and Genetic Filter. *IEEE Transactions on Cybernetics*, (Under review).
- 2021 Ali Anaissi, Basem Suliman, **Seid Miad Zandavi**. Online Tensor-Based Learning Model for Structural Damage Detection. *ACM Transactions on Knowledge Discovery from Data*, (Accepted).
- 2021 **Seid Miad Zandavi**, Vera Yuk Ying Chung, Ali Anaissi. Multi-User Remote lab: Timetable Scheduling Using Simplex Nondominated Sorting Genetic Algorithm. *ACM Transactions on Data Science*, (Accepted).
- 2020 Philip Mehrgardt, **Seid Miad Zandavi**, et al . U-Net Segmented Adjacent Angle Detection (USAAD) for Automatic Analysis of Corneal Nerve Structures. *Data*.
- 2019 **Seid Miad Zandavi**, Vera Yuk Ying Chung, Ali Anaissi. Stochastic Dual Simplex Algorithm: A Novel Heuristic Optimization Algorithm. *IEEE transactions on cybernetics*.
- 2019 **Seid Miad Zandavi**, Vera Yuk Ying Chung. State estimation of nonlinear dynamic system using novel heuristic filter based on genetic algorithm. *Soft Computing*, 23(14), 5559-5570.
- 2019 Feng Sha, **Seid Miad Zandavi**, Vera Yuk Ying Chung. Fast deep parallel residual network for accurate super resolution image processing. *Expert Systems with Applications* , 128, 157-168.
- 2019 **Seid Miad Zandavi**, Hamoon Pourmirzaagha, Alireza Yekrangi Sendi, Ershad Sadeghi Toosi, and Mostafa Zakariapour. The Urban Path Routing Adjustable Optimization by Means of Wavelet Transform and Multistage Genetic Algorithm. *Applied and Computational Mechanics*, 5(4), 696-703.
- 2018 **Seid Miad Zandavi**, Seid H. Pourtakdoust. Multidisciplinary design of a guided flying vehicle using simplex nondominated sorting genetic algorithm II. *Structural and Multidisciplinary Optimization*, 57(2), 705-720.
- 2017 **Seid Miad Zandavi**. Surface-to-air missile path planning using genetic and PSO algorithms. *Journal of Theoretical and Applied Mechanics*, 55(3), 801-812.
- 2016 Hadi Nobahari, **Seid Miad Zandavi**, Hamed Mohammadkarimi. Simplex filter: a novel heuristic filter for nonlinear systems state estimation. *Applied Soft Computing*, 49, 474-484.
- 2016 Seid H. Pourtakdoust, **Seid Miad Zandavi**. A hybrid simplex non-dominated sorting genetic algorithm for multi-objective optimization. *International Journal of Swarm Intelligence Evolutionary Computation*, 5(3), 1-11.

Conference Papers

- 2020 Ali Anaissi, Basem Suleiman, **Seid Miad Zandavi**. Online Tensor Decomposition with optimized Stochastic Gradient Descent: an Application in Structural Damage Identification. *IEEE Symposium Series on Computational Intelligence (SSCI2020)*.
- 2019 **Seid Miad Zandavi**, Zexi Hu, Vera Yuk Ying Chung, Ali Anaissi. Augmented Reality Vision Improving Educational Learning. *26th International Conference on Neural Information Processing*, Springer.
- 2019 Zexi Hu, Vera Yuk Ying Chung, **Seid Miad Zandavi**, Wanli Ouyang, Xiangjian He, Yuefang Gao. High-Performance Light Field Reconstruction with Channel-wise and SAI-wise Attention. *26th International Conference on Neural Information Processing (ICONIP)*, Springer.
- 2019 Ali Anaissi, **Seid Miad Zandavi**. Multi-Objective Autoencoder for Fault detection and Diagnosis in Higher-Order Data. *International Joint Conference on Neural Networks (IJCNN)*, IEEE.
- 2018 **Seid Miad Zandavi**, Vera Yuk Ying Chung. Augmented Reality for Remote Laboratory Improving Educational Learning: Using Elevated Particle Swarm Optimization in Object Tracking Scheme. *International Joint Conference on Neural Networks (IJCNN)*, IEEE, 1-6.
- 2018 Ziyu Liu, Alexander McClung, Henry WF Yeung, Vera Yuk Ying Chung, **Seid Miad Zandavi**. Top-down person re-identification with Siamese convolutional neural networks. *International Joint Conference on Neural Networks (IJCNN)*, IEEE, 1-8.
- 2017 **Seid Miad Zandavi**, Feng Sha, Vera Yuk Ying Chung, Zhicheng Lu, Weiming Zhi. A novel ant colony detection using multi-region histogram for object tracking. *International Conference on Neural Information Processing (ICONIP)*, Springer, 25-33.
- 2017 Weiming Zhi, Henry Wing Fung Yueng, Zhenghao Chen, **Seid Miad Zandavi**, Zhicheng Lu, Vera Yuk Ying Chung. Using transfer learning with convolutional neural networks to diagnose breast cancer from histopathological images. *International Conference on Neural Information Processing (ICONIP)*, Springer, 669-676.
- 2017 Weiming Zhi, Zhenghao Chen, Henry Wing Fung Yueng, Zhicheng Lu, **Seid Miad Zandavi**, Vera Yuk Ying Chung. Layer Removal for Transfer Learning with Deep Convolutional Neural Networks. *International Conference on Neural Information Processing (ICONIP)*, Springer, 460-469.
- 2017 Zhicheng Lu, Yuk Ying Chung, Henry Wing Fung Yueng, **Seid Miad Zandavi**, Weiming Zhi, and Wei-Chang Yeh. Using Hidden Markov Model to Predict Human Actions with Swarm Intelligence. *International Conference on Neural Information Processing (ICONIP)*, Springer, 21-30.

Peer Reviewer

- 2019 The International Conference on Neural Information Processing, ICONIP 2019.
- 2019–Present Artificial Intelligence Review.
- 2018–Present IEEE Transactions on Evolutionary Computation.
- 2018 Swarm and Evolutionary Computation.
- 2018 Evolutionary Computation, MIT Press.
- 2016–Present ISA Transactions.

Teaching

- 2018–Present **COMP5310**, *Principles of Data Science*, School of Computer Science, The University of Sydney.
Role: Teaching Assistant (TA), Tutor
- 2017–Present **COMP5703**, *Information Technology Capstone Project*, School of Computer Science, The University of Sydney.
Role: Supervision, Tutor
- 2019–Present **ENGG1801**, *Engineering Computing*, School of Computer Science, The University of Sydney.
Role: Teaching Assistant (TA), Tutor
- 2018 **INFO3406**, *Introduction to Data Analytic*, School of Computer Science, The University of Sydney.
Role: Teaching Assistant (TA), Tutor
- 2018 **COMP5318**, *Machine Learning and Data Mining*, School of Computer Science, The University of Sydney.
Role: Tutor

Work Experience

- 2014–2017 **Project Manager**, *Center of Modern Science & Technology of SADID*, Shiraz, Iran.
Key Achievements
- Designing and analyzing Micro Aerial Vehicles without passenger for agricultural purposes
 - Assessing designing and executing researching plans of controlling systems to spray the farms with Micro Aerial Vehicles
 - Achieving the safety standards appropriate for applying Micro Aerial Vehicles for agricultural and surveying purposes
- 2012–2014 **Designing Engineer**, *Rased Sanat Tarah Company*, Mashhad, Iran.
Key Achievements
- Designing and executing equipment modifications with effective cost for increasing safety and assurance capacity
 - Designing and executing researching plans of manufacturing mechanical and electromechanical systems

Computer Skills

Project Management, MS Project.

Simulation, MATLAB Simulink, Digital DatCom.

Data Analysis, MATLAB, Python, R.

Machine Learning, Pytorch, Mat-Net, TensorFlow.

Others, Latex, Word, Excel, Powerpoint, Publisher.