

Mashaan Alshammari

Riyadh, Saudi Arabia
mashaan.awad@outlook.com

Last Updated: December 2023



I am a machine learning researcher, working on graph clustering and deep learning problems. Previously, I held academic positions in an Australian institute and a Saudi university. I designed material for computer science at masters and undergraduate levels.

EDUCATION

| | |
|---|--------------------|
| Doctor of Philosophy - PhD, Computer Science , <i>The University of Sydney</i> , Thesis title: " Graph Filtering and Automatic Parameter Selection for Efficient Spectral Clustering ." | 2017 — 2021 |
| Master of Science, Computer Science , <i>King Fahd University of Petroleum and Minerals (KFUPM)</i> , Thesis title: " Human In-Place Action Recognition using Combination of Kinect Data Streams ." | 2013 — 2016 |
| Bachelor of Science, Computer Science , <i>University of Hail</i> , | 2005 — 2010 |

SKILLS

| | |
|-----------------------------------|--|
| Research & Development | Authored +15 research papers . |
| Communication | English (fluent), Arabic (native). |
| Technical | Python and Java programming, Python's ML libraries (scikit-learn, pytorch, seaborn). |
| Curriculum design | Experience in designing computer science and data science courses according to Australian Qualifications Framework (AQF) and Saudi Arabia's NCAAA. |

PROFESSIONAL EXPERIENCE

| | |
|--|--|
| CURRICULUM DEVELOPMENT COLLABORATOR <i>Sydney Polytechnic Institute</i> | Jul 2023 — Present <i>Sydney, Australia</i> |
| <ul style="list-style-type: none">Participated in curriculum development for a Master of Data Science and Bachelor of Computing.Designed the outline and planner documents for courses: Database Systems (U211), Cybersecurity and Information Assurance (U312), and Full-stack development (U322). | |
| MACHINE LEARNING RESEARCHER <i>Freelance</i> | JUN 2022 — Present <i>Riyadh, Saudi Arabia</i> |
| <ul style="list-style-type: none">Working on machine learning research with researchers from the University of Sydney and KFUPM.Our research focuses on Graph Convolutional Network (GCN) and Unsupervised Domain Adaptation (UDA).Designed experiments using python ML libraries (scikit-learn, pytorch, seaborn, and others). | |
| ASSISTANT PROFESSOR <i>University of Hail</i> | JAN 2021 — JUN 2022 <i>Hail, Saudi Arabia</i> |
| <ul style="list-style-type: none">Participated in curriculum design and lecturing for multiple graduate and undergraduate computer science courses.Adapted new teaching strategies to teach the following courses: data structures (ICS202), advanced database (ICS434), and machine learning for big data (CSAI510). | |
| CURRICULUM DEVELOPMENT COLLABORATOR <i>Sydney Polytechnic Institute</i> | SEP 2020 — MAR 2021 <i>Sydney, Australia</i> |
| <ul style="list-style-type: none">Participated in curriculum development for a Master of Data Science.Designed lecture slides, assignments, practical sessions, and exams for courses: Database Systems and Infrastructure (MDS604), Mathematics for data science (MDS602), and Artificial Intelligence and Innovation (MDS607). | |
| SYSTEM ENGINEER <i>SABIC</i> | AUG 2010 — MAY 2012 <i>Jubail, Saudi Arabia</i> |
| <ul style="list-style-type: none">In charge of securing and maintaining the plant network components.Upgraded obsolete network components during online operation. | |
| INTERN <i>Saudi Aramco</i> | JUN 2009 — JAN 2010 <i>Dhahran, Saudi Arabia</i> |
| <ul style="list-style-type: none">Completed cooperative training at EXPEC ARC as a member of Computational Modeling Team.Developed a GUI interface populating the simulator output, large text files, into a database. | |

Mashaan Alshammari

Riyadh, Saudi Arabia
mashaan.awad@outlook.com

Last Updated: December 2023



SELECTED GITHUB PROJECTS

[VisionTransformer-MNIST](#)

ViT, pytorch, Jupyter Notebook

- Implementation of the paper “An Image is Worth 16x16 Words: Transformers for Image Recognition at Scale”, which was published by Google research.
- Vision transformers replaces CNNs as the preferred method for image classification.

[Graph Convolutional Networks \(GCNs\)](#)

GNNs, GCNs, pytorch, Jupyter Notebook

- Implementation of the paper “Semi-Supervised Classification with Graph Convolutional Networks”, which was published in ICLR 2017.
- Graph Convolutional Networks (GCNs) perform node classification in graphs.

[ADDA](#)

GANs, pytorch, Jupyter Notebook

- Implementation of the paper “Adversarial Discriminative Domain Adaptation”, which was published in CVPR 2017.
- ADDA uses GANs to perform unsupervised domain adaptation (UDA).

[my personal website](#)

JavaScript, CSS, ReactJS

- Designed a personal website using ReactJS.
- I used github pages to host my website.

SELECTED PUBLICATIONS

- [Mashaan Alshammari](#), John Stavrakakis, Adel F. Ahmed, Masahiro Takatsuka: “Graph Construction using Principal Axis Trees for Simple Graph Convolution.”, **arXiv**:2302.12000, 2023.
- [Mashaan Alshammari](#), John Stavrakakis, Adel F. Ahmed, Masahiro Takatsuka: “Random projection forest initialization for graph convolutional networks.”, **MethodsX**, 2023.
- [Mashaan Alshammari](#), John Stavrakakis, Adel F. Ahmed, Masahiro Takatsuka: “Random projection tree similarity metric for SpectralNet.”, **Array**, 2023.
- [Mashaan Alshammari](#), John Stavrakakis, Adel F. Ahmed, Masahiro Takatsuka: “The Effect of Points Dispersion on the k-nn Search in Random Projection Forests.”, **IEEE Access**, 2022.
- [Mashaan Alshammari](#), John Stavrakakis, Masahiro Takatsuka: “A Parameter-Free Graph Reduction for Spectral Clustering and Spectralnet.”, **Array**, 2022.
- [Mashaan Alshammari](#), John Stavrakakis, Masahiro Takatsuka: “Refining a k-nearest neighbor graph for a computationally efficient spectral clustering.”, **Pattern Recognition**, 2021.
- [Mashaan Alshammari](#), Masahiro Takatsuka: “Approximate spectral clustering density-based similarity for noisy datasets.”, **Pattern Recognition Letters**, 2019.
- [Mashaan Alshammari](#), Masahiro Takatsuka: “Approximate spectral clustering with eigenvector selection and self-tuned k.”, **Pattern Recognition Letters**, 2019.

SELECTED ACTIVITIES

Journal Reviewer

- [Pattern Recognition Journal](#)
- [Information Sciences Journal](#)
- [Expert Systems with Applications Journal](#)

Conference Organization

- [Program committee](#), 30th International Conference on Neural Information Processing (ICONIP2023), Changsha, China, November 20-23, 2023.
- [Technical Program Committee](#), 7th International Conference on Data Science and Machine Learning Applications (CDMA2022), Riyadh, Saudi Arabia, March 1-3, 2022.