

MOHAMED AFHAM

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EDUCATION

University of Moratuwa, Sri Lanka

Aug 2017 - Present (Expected Graduation: May 2022)

CGPA: 3.78 (First Class Honours)

B.Sc (Hons) - Electronics and Telecommunication Engineering

Dean's List: Semester 1,2,4

St. Joseph's College, Trincomalee, Sri Lanka

Grad: Dec 2016

GCE Advanced Level (Mathematics, Physics, Chemistry, General English)

4As / 11th in country / z-score of 2.78

(country-wide university entrance examination taken by over 100,000 students annually)

MOOCs

Deep Learning: 5-course specialization (on Coursera)

(Certificate earned - May 2020)

Mathematics for Machine Learning Specialization (on Coursera)

(Certificate earned - Dec 2019)

RESEARCH EXPERIENCE

Machine Vision Research Group, University of Moratuwa, Sri Lanka

Undergraduate Thesis Research Student

(Apr 2021 - Present)

Advisor: Dr. Ranga Rodrigo

- Research on leveraging self-supervised contrastive learning for 3D point cloud understanding.
- Exploring the possibility of Few-Shot Learning, Meta-Learning settings in 3D point clouds.

MBZUAI, Abu Dhabi, UAE

Research Assistant - Internship

(Oct 2020 - Apr 2021)

Advisor: Dr. Salman Khan

- Worked as a research assistant for the computer vision department in the university research division.
- Research on Few Shot Learning with focus on leveraging natural language descriptions to improve few-shot image classification

INDUSTRY EXPERIENCE

VeracityAI, Colombo, Sri Lanka

Associate Machine Learning Engineer - Part time

(Jun 2021 - Present)

- Research and development of state-of-the-art algorithms for vehicle damage detection system
- Experimenting with real-world dataset of vehicle damages with the developed algorithms

PUBLICATIONS

Mohamed Afham, Salman Khan, Muhammad Haris Khan, Muzammal Naseer and Fahad Shahbaz Khan, **Rich Semantics Improve Few-Shot Learning** (*BMVC 2021*)

Mohamed Afham, Udith Haputhanthri, Jathurshan Pradeepkumar, Mithunja Anandakumar, Ashwin De Silva and Chamira Edussooriya, **Towards Accurate Cross-Domain In-Bed Human Pose Estimation** (*submitted for review, 2021*)

Mohamed Afham, Isuru Dissanayake, Dinithi Dissanayake, Amaya Dharmasiri, Kanchana Thilakarathna and Ranga Rodrigo, **CrossPoint: Self-Supervised Cross-Modal Contrastive Learning for 3D Point Cloud Understanding** (*submitted for review, 2021*)

Amaya Dharmasiri, Dinithi Dissanayake, Isuru Dissanayake, **Mohamed Afham**, Ranga Rodrigo and Kanchana Thilakarathna, **Part Semantic Aware Latent Space Navigation for Controlled Regeneration of 3D Point Clouds** (*submitted for review, 2021*)

RESEARCH PROJECTS

3D Point Cloud Understanding

(May 2021 - Present)

- Investigation on leveraging self-supervised, contrastive learning for better point cloud understanding
- Survey on existing unsupervised methods for efficient pretraining of 3D point clouds
- Experimentation on various techniques to utilize pretraining strategies from 2D domain to 3D point cloud domain

In bed Human Pose Estimation

(June 2021 - Oct 2021)

- Research and experimentation with state-of-the-art methods for domain adaptation in in-bed pose estimation
- Analysis on various domain adaptation techniques for pose estimation
- Outcome: <https://arxiv.org/abs/2110.03578>

Few-Shot Learning

(Oct 2020 - June 2021)

- Research and experimentation on state-of-the-art few-shot image classification methods
- Analysis on integrating natural language descriptions to improve few-shot image-classification
- Outcome: <https://arxiv.org/abs/2104.12709>

OTHER PROJECTS

Twitter Sentiment Analysis

Github Link, Blog Article

Memory Augmented Neural Networks - Re implementation

Github Link, Blog Article

SELECTED AWARDS / HACKATHONS

2nd Runner Up - Video and Image Processing Cup, IEEE ICIP, Alaska, USA (Virtual)	2021
IEEE SMC Winners - BR41N.io hackathon, IEEE SMC Conference, Toronto	2020
Ranked 191st in the world - IEEEExtreme 13.0	2019
Bronze Medalist - International Mathematics Competition for University Students, Bulgaria	2018
Honorable Mention - International Mathematics Olympiad (IMO), Thailand	2015
Merit Award - International Mathematics Competition	2014
Gold Medalist - Sri Lanka Physics Olympiad	2016

RELEVANT COURSEWORKS

Computer Vision: EN2550 Fundamentals of Image Processing and Machine Vision (**A**), EN4553 Machine Vision (**Ongoing**)

Mathematics: MA2023 Calculus (**A+**), MA 2033 Linear Algebra (**A+**), MA4043 Neural Network and Fuzzy Logic (**Ongoing**)

Miscellaneous: EN1060 Signals and Systems (**A**), EN2570 Digital Signal Processing (**A**), CS2022 Data Structures and Algorithms (**A-**), EN2040 Random Signals and Processes (**A-**)

SKILLS

Languages: Python (proficient), MATLAB

Cloud Computing: AWS, Microsoft Azure

Experience & Interests: Computer Vision, Machine Learning

Tools: PyTorch, Tensorflow