Abdullah Ahmad Zarir

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Research Interests

Artificial Intelligence, Machine Learning, Deep Learning, Generative Models, Computer Vision, Natural Language Processing, Interpretability, Autonomous Driving

Education

Fall 2013 –
Winter 2018
(expected)
BSc in Computer Science, *International Islamic University, Malaysia (IIUM).*
GPA 3.73/4.0 (upto level 4 term 1)

Publications & Submissions

2017 **Real Time Human Action Recognition using Stacked Sparse Autoencoders,** *A. Farooq, E. Mohammad, A. A. Zarir, A. Ritahani, ICIMU 2017*

2016 **Exploring Imbalanced Class Issue in Handwritten Dataset using Convolutional Neural Networks & Deep Belief Networks,** *A. Afifah, A. A. Zarir, A. Ritahani, M-CAIT 2016*

2016 **Two Objectives Big Data Task Scheduling using Swarm Intelligence in Cloud Computing,** *L. Diallo, A. A. Zarir, A. Hashim, R. F. Olanrewaju, S. Islam, IJST 2016*

Internships

Summer 2017 -
Present
Quintiq, a Dassault Systèmes company, *Kuala Lumpur, Malaysia*
Software Engineering Intern, SQC

Contributed in making an automated testing framework for the company's hybrid mobile application as part of the Quintiq Mobile Client team. The framework library is written in python using Selenium and Appium automation library.

Research Assistant Experience

Fall 2016 –
Winter 2017
"Automated Image Captioning with Deep Neural Networks", Department of Computer Science, IIUM *with Dr. Amelia Ritahani Ismail*
Implemented a caption generation model inspired by the language translation model, based on transfer learning using Google's Inception v3, retrained the last layer. It follows the Show & Tell method, using a CNN for encoding image and RNN for decoding into text.

Summer 2016
"A low hop distance hierarchical interconnection network", Department of Computer Science, IIUM *with Dr. M. M. Hafizur Rahman*
Coded and analyzed a simulation of the proposed hierarchical interconnection network using graph traversal methods in C++.

Winter 2016
"Comparative Performance of Deep Learning and Machine Learning Algorithms on Imbalanced Handwritten Data", Department of Computer Science, IIUM *with Dr. Amelia Ritahani Ismail*
Implemented neural network based prediction models and analyzed their performance by generating imbalanced dataset of handwritten digits.

Teaching Assistant Experience

Winter 2017	**CSC 4207, Signals & System,** *Department of Computer Science, IIUM*
Fall 2016, Winter 2017	**CSC 2101, Data Structures & Algorithms,** *Department of Computer Science, IIUM*
Winter 2016	**CSC 2103, Web Programming,** *Department of Computer Science, IIUM*
Winter 2015, 2016	**CSC 3100, Principles of Artificial Intelligence,** *Department of Computer Science, IIUM*
Winter, Fall 2015	**CSC 2705, Calculus II & Linear Algebra,** *Department of Computer Science, IIUM*
Winter, Fall 2014	**CSC 1100, Elements of Programming,** *Department of Computer Science, IIUM*

Projects

2017   **Automated Image Captioning in Android**
Designed a cloud based model for easily generating captions for image taken by an android device on the run. The prediction model after training was hosted in a DigitalOcean droplet. Picture taken by the app would update Google Firebase database and then it would notify the NodeJS server in the droplet. Another Python server running in parallel takes the new image and generates captions using the trained prediction model written using TensorFlow which returns the caption with max probability. Once the Firebase database is updated with the caption, it is broadcasted back to the user.

2016   **Human Motion Learning**
Encoded a short clip of human motion into a static image consisting of the temporal difference in frames also known as MHI. Dataset included 6 different type of motions. These images were used as input to a stacked autoencoder to extract features. Extracted features were then used to train a softmax classifier for prediction.

2015   **Faulty Pill Detection in Medicine Strip**
Trained a neural net which can detect a medicine strip in a running conveyor belt and then can further detect if any pill in the medicine strip is faulty. OpenCV was used to isolate the medicine strip in the image after detection, following that the image was striped into single pills. The single pill images were used as the training data. The prediction model could identify exactly which pills were faulty in the packaging by numbering them in order.

Awards & Scholarships

2013-2017   **Dean's List,** *Department of Computer Science, IIUM*
Six Semesters

2017   **Unicode Programming Competition,** *Monash University & School of UOW in INTI*
Champion – Team Zeroth

A programming competition among students of many universities in Malaysia. More than 50 teams participated in this year. The contest had 3 rounds 3 hour each with increasing difficulty.

2016   **ACM ICPC Malaysia |** *Al Khawarizmi National Programming Competition*
First Runner Up – Team WilderCodes

This is a yearly competition taking place at the national level between all the universities in Malaysia. All the best competitive programming teams in the country participates in this contest.

2016   **Open Programming Competition,** *USIM*
Champion – Team MasterMinds

Around 30 teams participated in this programming contest from different universities in Malaysia. The contest was 5 hours long consisting of 9 problems.

2015	**ACM ICPC Asia | *Singapore Regional***
	Honorable Mention – Team MasterMinds

This is the last round before the world final. At the time, this regional was declared the mini world final based on its contenders and the difficulty of the problem set. A total of 60 teams were selected from the preliminary round for the onsite contest in NUS. All the best teams from 11 different countries including China, Taiwan, Korea, Vietnam, India and others participated.

2015	**Freescale Cup | *Intelligent Car Racing***
	Second Runner Up – Team IIUM A

The objective of the contest was to make a fast lane following car using a line scan camera. There were 60 teams in the competition. Video link: *https://www.youtube.com/watch?v=RCqpODranwg*

2014	**ACM ICPC Asia | *Kuala Lumpur Regional***
	Honorable Mention – Team Void

2014	**ACM ICPC Malaysia | *Al Khawarizmi National Programming Competition***
	Fourth Place – Team Void

2014	**Academic Excellence Award,** *International Islamic University, Malaysia*
	Full-term Undergraduate Scholarship

2012	**ACM ICPC Asia | *Dhaka Regional***
	Honorable Mention – Team Origin

Technical Skills

Languages	C/C++, Python, Java, JavaScript, PHP, R, Assembly (MIPS)
Frameworks & Libraries	TensorFlow, Scikit-Learn, NLTK, Flask, Android, NodeJS, jQuery, Laravel
Deployment	Git, Docker
OS	Unix, Mac, Windows

Activities

2016 - Present	Founding member of **codeknights.org**
	An online programming competition platform curated for undergraduate students in Malaysia.
2015-2017	**IIUM Code Jam,** *Programming Contest in ACM ICPC format*
	Organizer (2015,2016), Problem Setter & Judge.
2011 - 2013	**Executive Officer (Logistics),** *CommunityAction (ca-bd.org)*
	Award winning student run volunteer organization in Bangladesh.
2012	**Youth Leadership Summit,** *BYLC*
	Delegate
2012	**TedxDhaka**
	Volunteer, Organizing Committee