S M Abdullah, PhD

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Summary

Innovative and passionate STEAM educator and AI specialist with a PhD in Information Technology and extensive experience in image processing, computer vision, and embedded systems. Skilled in designing and delivering engaging STEAM programs that foster critical thinking, problem-solving, and hands-on learning experiences for students. Committed to leveraging cutting-edge technologies and interdisciplinary approaches to inspire the next generation of STEAM innovators. Seeking a challenging role that allows me to contribute my expertise in AI, computer programming, and curriculum development to enhance educational outcomes.

Professional Experience

STEAM Facilitator, Casey Tech School *January 2022 - Present*

- Spearheaded innovative STEAM programs leveraging cutting-edge digital technologies for secondary school students across the Casey local area, employing a rigorous design cycle methodology to cultivate critical thinking and ignite passion for technology-driven learning.

STEAM Technician, Casey Tech School *February 2021 - January 2022*

- Engineered and implemented cutting-edge digital STEAM programs, engaging hundreds of secondary school students across Casey, fostering technological literacy and inspiring the next generation of innovators.

Casual Software Engineer, Additive Assurance *September 2020 - November 2020*

- Enhanced 3D printing by identifying defective regions in real-time using deep neural network models.

Graduate Teaching Associate, Monash University *March 2015 - July 2021*

- Orchestrated comprehensive undergraduate curriculum delivery, encompassing dynamic practical sessions, rigorous assessments, personalised student mentoring, and meticulous final exam evaluation for multiple courses.

Casual Sessional Staff, RMIT University *March 2020 - June 2020*

- Spearheaded the delivery of COSC2531 [Programming Fundamentals], a pivotal postgraduate course, cultivating essential Java coding skills and computational thinking in aspiring tech professionals.

Lecturer, United International University, Bangladesh *January 2011 - February 2019 (including study leave)*

- Orchestrated comprehensive undergraduate programs, including curriculum design, rigorous assessment creation, and meticulous exam moderation, while implementing robust systems for results management and academic integrity.

Education

Monash University, Australia

- *Doctor of Philosophy (PhD), Information Technology*
  - March 2015 - June 2019
  - Research: Analysis and development of hierarchical algorithms for unsupervised learning in image segmentation and data clustering.
  - Thesis Title: Novel Parameter-less Hierarchical Algorithms for Image Segmentation and Data Clustering.
- *Master of Philosophy (MPhil), Information Technology*
  - April 2013 - October 2014
  - Marks: 94% (H1)
  - Award: Vice-Chancellor's Commendation for Thesis Excellence 2014
  - Thesis Title: Height Adaptive LiDAR Segmentation for Building Extraction and Roof Reconstruction.

University of Dhaka, Bangladesh

- *Bachelor of Science (BS), Computer Science & Engineering*
  - April 2006 - December 2010
  - CGPA: 3.76 out of 4.00
  - Thesis Title: Congestion Control in Wireless Body Sensor Networks.

Certifications

Certification	Date	Institute
Cert. IV in Training and Assessment	September 2021	Monash Student Association (Clayton) Inc.
VEX IQ Educator Certification Exam	May 2021	VEX Robotics
Parallel Programming in Java!	September 2020	Coursera Course Certificates
Front-end Web development with React	August 2020	Coursera Course Certificates
Front-end Web UI and tools Bootstrap 4	July 2020	Coursera Course Certificates
Learning Django	July 2020	LinkedIn Learning
Learning React.js	June 2020	LinkedIn Learning
C++ Best Practices for Developers	July 2019	LinkedIn Learning
C++: Smart Pointers	July 2019	LinkedIn Learning

Innovative Software Projects

- **GitHub User Explorer**
  - Engineered a dynamic React application interfacing with GitHub's API
  - Delivers comprehensive user profile insights in real-time
- **CTS CMS: Educational Resource Management Suite**
  - Architected a robust, cross-platform solution for streamlined educational resource management
  - Seamlessly integrates desktop and mobile applications for enhanced accessibility and efficiency
- **FlywithMe: Drone Control Interface**
  - Developed an intuitive Python GUI using PySimpleGUI for precise Tello Edu drone control
  - Bridged complex drone technology with user-friendly interface, promoting STEM education
- **Easter Egg Hunt: Interactive Gaming Experience**
  - Crafted an engaging picture-based game application leveraging Kivy framework
  - Demonstrates proficiency in creating visually appealing and interactive GUI interfaces
- **WeatherNow: Real-time Climate Insights**
  - Engineered a Python-based weather application integrating PySimpleGUI and API technologies
  - Delivers location-specific weather data based on user postcodes, showcasing data retrieval and presentation skills

Research Contribution

My research focuses on advanced image segmentation algorithms, including parameter-free hierarchical methods and LiDAR data processing for building extraction. I emphasise non-iterative, flexible approaches that improve image segmentation quality and efficiency. Key contributions include developing hierarchical mutual nearest neighbour and tree-based segmentation techniques, and innovative methods for automatic building roof extraction from LiDAR data. Additionally, my work extends to analyzing human interactions in meetings using directed acyclic graphs and developing new measures for correlation mining in graph databases.

Please refer to my Google Scholar Profile for an up-to-date list of research publications.

Prestigious Recognitions and Competitive Grants

- **APRS/CiSRA Best Student Paper Award** at DICTA 2016
  - Recognised for outstanding research contribution
- **International Postgraduate Research Scholarship (IPRS) and Australian Postgraduate Award (APA)**
  - Secured for doctoral studies at Monash University
- **Deakin University Postgraduate Research Scholarship (DUPRS)**
  - Offered in acknowledgment of academic excellence for doctoral studies (not availed)
- **Postgraduate Publication Award (PPA)** from Monash University
  - Acknowledged for research impact and dissemination
- **Vice-Chancellor's Commendation for Thesis Excellence 2014** from Monash University
  - The Vice-Chancellor's Commendation Awards for Masters Thesis Excellence are awarded annually to students who have presented the best master's theses of the year.
- **International Travel Grants**
  - DICTA 2016, Gold Coast, Australia
  - ICME 2014, Chengdu, China
- **4th Place, International Robotics Intelligent Systems Competition 2010**
  - NextSapiens, India
  - Showcased innovative engineering skills
- **4th Position, NSU Computer Programming Contest 2007**
  - Team "DU BRAVE HEARTS"
  - Demonstrated strong coding and problem-solving abilities