

ZAHRAA MARAFIE

Assistant Professor

January 2024



 www.zmarafie.com

 +965-99955800

 zahraa.marafie@ku.edu.kw

PERSONAL PROFILE

I'm a technology enthusiast actively involved in the domain of computer science and engineering. My passion lies in using innovative solutions to make the world a better place. I completed my Master's and PhD in Computer Engineering at the University of California, Irvine in 2016 and 2021. During my doctoral studies, I worked on an exciting project called AutoAcoach. It's a personality-based coach that uses AI to improve driving habits for automobile drivers over time. Now at Kuwait University, I do research on Internet-of-Things, Artificial Intelligence, Real-time systems and Service-oriented Computing. Beyond academia, I love working with students as the ClickIT club supervisor, organizing events and trainings related to their studies to help them grow and learn how to work in teams. It's not just about tech; it's about inspiring the next generation.

WORK EXPERIENCE

2021 -
PRESENT

ASSISTANT PROFESSOR

Department of Information Science, Kuwait University, Kuwait

- ISC 100 - Introduction to Personal Computers
 - (Fall 2022/2023, Spring 2022/2023)
- ISC 240 - Programming and Problem Solving
 - (Fall 2022/2023, Spring 2022/2023)
- ISC 357- Operating Systems & File System Management
 - (Fall 2021/2022, Spring 2021/2022)
- CLS 161 - Introduction to Entrepreneurship
 - (Fall 2021/2022, Spring 2021/2022)
- CLS 130 - Ethics and Practices
 - (Fall 2023/2024)
- ETM 450 - Applications of Information Systems in Environmental Management
 - (Fall 2023/2024)

EDUCATION

Ph.D of Computer Engineering

2021 University of California, Irvine

Masters of Computer Engineering

2016 University of California, Irvine

Bachlors of Information Science

2011 Kuwait University

RESEARCH INTERSTS



Internet-of-Things



Real-Time Systems



Artificial Intelligence



Automation



Cloud Computing



Edge and Fog Intelligence



Service-Oriented Computing

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WORK EXPERIENCE

TEACHING ASSISTANT 2018-2019

Department of Electrical Engineering and Computer Science, University of California, Irvine, USA

- EECS 223 - Real-Time Systems

SCHOLARSHIP TEACHING ASSISTANT 2014-2021

Department of Information Science, Kuwait University, Kuwait

Skills: Python (Programming Language) · R · Real-time Systems · Service-Oriented Computing · FinTech · Intelligent IoT · Java · Cloud Firestore · Arduino · Raspberry Pi · Machine Learning · Artificial Intelligence (AI) · Distributed Systems · Internet of Things (IoT) · Service-Oriented Architecture (SOA) · Network-on-Chip (NoC) · Genetic Algorithms ·

COMPUTER PROGRAMMER 2011-2014

Center of Information Systems, Ministry of Finance, Kuwait

Skills: JavaScript · Cascading Style Sheets (CSS) · HTML5 · Visual Basic .NET (VB.NET) · Java Web Services · Google Maps API · Google Analytics · C# · SharePoint · C++

TEACHING ASSISTANT 2011

Department of Information Science, Kuwait University, Kuwait

- ISC 241 - Data Structures
- ISC 363 - Computer Organization


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WORK EXPERIENCE

ADMINISTRATIVE COORDINATOR 2010-2011

Department of Visual Communication,
Kuwait University, Kuwait

- Student Part-time job.

GRAPHIC DESIGNER 2009-2010

Department of Information Science,
Kuwait University, Kuwait

- Student part-time job.

EDUCATION

PH.D OF COMPUTER ENGINEERING 2021

University of California, Irvine

Dissertation: "Building Intelligent IoT Agents Using Personality-Based Service Models."

Supervisor: Prof. Kwei-Jay Lin

Summary: AutoCoach is an IoT-based intelligent agent which categorizes drivers into various driving personalities to provide individualized feedback through machine learning models. AutoCoach is intended for improving automobile drivers' performance by applying persuasive technology. The users' driving behavior is judged based on the drivers' historical data for a personalized experience. Using cloud-based Android software, AutoCoach collects, analyzes, and learns from a drivers' previous driving data to deliver individualized, effective feedback. The feedback supports maintaining safe driving behavior and improves awareness of risky driving habits. By applying means of persuasive technology and friendly feedback, services can be provided to drivers to improve their behavior.

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EUDCATION

MASTERS OF COMPUTER ENGINEERING 2016

University of California, Irvine

Thesis: "Energy Optimization for Two-Dimensional NoCs Using Genetic Algorithms."

Supervisor: Prof. Nader Bagherzadeh

Summary: The main focus of this work is to improve the energy efficiency for a general purpose NoC-based SoC by finding the best possible extra links to add to a two-dimensional mesh topology via genetic algorithms. In the genetic algorithm, extra links are added randomly to form the different solutions for this NP-Hard problem. Comparing the energy consumption results of the new NoC design to the regular mesh topology, an improvement of 19% in energy per throughput is obtained. Ultimately, it was found that the more and the longer the links, the higher energy efficiency achieved.

BACHELORS OF INFOTMATION SCIENCE 2011

Kuwait University, Kuwait

Capstone Project: "Automated Student Attendance System"


Supervisor: Dr. Hanady Abdulsalam

Summary: This capstone project that makes keeping track of attendance at university easier. It uses RFID cards and keyfobs for students to enter classrooms, and their attendance is automatically recorded when they scan these devices at the door. The system is based on KU attendance rules. It has two interfaces – one for instructors and the second one is for students. Students receive warnings via SMS if he/she is absent for 3, 6, and 7 hours based on KU rules. This project simplifies attendance tracking, reduces manual work, and encourages students to attend classes regularly.

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PUBLICATIONS

Building Intelligent IoT Agents Using Personality-Based Service Models 2021

Z Marafie

University of California, Irvine

AutoCoach: An Intelligent Driver Behavior Feedback Agent with Personality-Based Driver Models 2021

Z Marafie, KJ Lin, D Wang, H Lyu, Y Liu, Y Meng, J M

Electronics 10 (11), 1361

AutoCoach: Driving Behavior Management Using Intelligent IoT Services 2019

Z Marafie, KJ Lin, D Wang, H Lyu, Y Meng, T Ito

2019 IEEE 12th Conference on Service-Oriented Computing and Applications

Proactive fintech: Using Intelligent IoT to Deliver Positive InsurTech Feedback 2018

Z Marafie, KJ Lin, Y Zhai, J Li

2018 IEEE 20th Conference on Business Informatics (CBI) 2, 72-8121

Energy Optimization for Two-Dimensional NoCs Using Genetic Algorithms 2016

Z Marafie

University of California, Irvine