Affiq Khairuddin

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EDUCATION

Brunel University, London – BSc Computer Science 09/19 – 06/22

- Final Award: Bachelor of Science with First Class Honours
- Achievements: CEDPS Academic Excellence Scholarship, Associate Teaching Assistant (Dept. of Computer Science)
- Key modules: AI (A+), Microservices & Blockchain (A+), Algorithms(A+), Networks and OS (A+), 2nd Year Project (A+), Logic & Computation (A*), Cybersecurity (A), Network Comp. (A), Software Dev. & Management(A), FYP (B+)

University College London – Higher Education 09/16 – 06/18

- Final Award: Pass in Certificate of Higher Education
- Achievements: Henry Maynard Scholarship

Leyton Sixth-Form College – A-Levels 09/14 – 06/16

- Final Award: Computer Science A*, Maths A, Further Maths A, Physics B
- Achievements: LSC High Achiever 2021 & 2022, Highest Achiever in Computing, Top 50 AQA Computing Results UK

Kelmscott Secondary School – GCSEs 09/09 – 06/14

- Final Award: 11 GCSEs (5 A*s, 5 As, B) including Maths, English and Science

PROJECTS

Final Year Project: Chicken Cottage E-Commerce System

- Developed an ordering website in collaboration with Chicken Cottage, intended for use by the company's franchisees and was integrated with the current Xero ERP-system.
- Designed a system with input from multiple stakeholders using various analysis techniques e.g., workflows, data flows, and flowcharts. It enables customers to log in, browse the product catalog and stock, place orders, and view previous invoices.
- Utilized Spring Boot for backend functionality and React JS for frontend functionality. Business processes were handled through the Xero Web API. Integrated a Kommunicate chatbot that could be trained to redirect to customer service representatives for more complex enquiries.

Worly: Environmental Quiz Website

- Developed a website that allowed users to login and participate in environmental quizzes.
- Achieved functionalities include login, changing user information, displayed quiz results, estimated carbon footprint for users, and provided advice on how to improve scores and reduce carbon footprint.
- Implemented using Spring Boot for backend, JPA for Object-Relational Mapping, and Thymeleaf and HTML for display.

Problem Solving: Heuristic Optimization Approaches

- Implemented a set of heuristic techniques, including Hill Climbing, Random-Mutation Hill Climbing, Evolutionary Computing, and Simulated Annealing, to calculate optimal solutions for complex problems that are infeasible to solve through brute-forcing.
- Worked on solution representation, such as weights on a scale being assigned to the left or right side according to binary, or a sequence of strings representing the path of a salesman.
- Demonstrated expertise in heuristic problem-solving approaches, with some approaches being able to escape local optima. Solutions achieved were particularly effective for problems such as balancing a set of random weights and the travelling salesman problem.

Vaccine Reactor: Ph Balancing Component

- Collaborated with the UCL EEE Cohort to develop a pH balancing system for monitoring and adjusting the pH sensitivity of vaccine batches by controlling motor levels and introducing acid and alkaline solutions.
- Utilized C programming and Arduino hardware to create the system, with Processing 3 graphics library for display.
- Resolved practical challenges such as strong motor function causing over-neutralization and depletion of solutions, and a narrow pH tolerance causing a "tug-of-war" effect.

Finch Robot: Command-Line Based Navigation

- Successfully designed and implemented a program that allowed users to interact with a command line bar and control a Finch robot through various functions such as turning, movement, command saving and loading, backtracking, repeating previous actions, and a positional system.
- Enhanced the program's functionality for developers, incorporating a parser that facilitated the understanding of command grammar and the easy definition of new commands with automatic parameter type validation.
- Utilized my programming skills in Java to deliver a high-quality program that met project requirements and user needs.

Arduino Robot: Algorithmic Problem Solving

- Demonstrated expertise in programming Arduino robots by creating solutions for multiple tasks, including the tower of Hanoi problem, navigating a narrow path with a PID controller, and solving a grid-maze using a breadth first search algorithm.
- Excelled in utilizing computational thinking and problem-solving skills to successfully program the robot to complete a range of challenges.
- Proven ability to effectively implement algorithms and control systems to enable the robot to complete complex tasks.

WLFB Bank App: Multithreaded Client-Server Application

- Developed Java application featuring concurrent transaction handling capabilities, including add, subtract, and transfer functions, utilizing three thin client threads and a main thread responsible for socket handling and central processing.
- Implemented a shared monitor with a Mutex Lock to prevent transactional errors and ensure smooth, error-free operation of the application

Quote Maykr: Automated Image-Generator and Poster

- Developed an automated program utilizing Selenium web-scraper to extract quotes from a website and draw them over a selection of backgrounds using Python Imaging Library, subsequently posting the resulting images to Instagram through the python InstaBot library.
- Implemented a feature to randomly select a set of hashtags to increase post visibility and vary user engagement, resulting in increased post engagement and visibility on Instagram account @quotemaykr.

Brunel Tech: Cybersecurity Analysis

- Analysed a mock scenario using industry-recognized frameworks such as the Mitre ATT&CK and SANS Controls frameworks, resulting in the creation of a network diagram, threat report, attack vector mapping, risk assessment, and risk management strategy.
- Utilized strong analytical skills and understanding of cybersecurity concepts to provide comprehensive analysis of scenario, effectively identifying, and addressing potential threats and vulnerabilities.

CICD: Automated Testing

- Designed a set of automated tests to be use in a Continuous-Integration Continuous-Delivery Environment.
- Implemented unit-testing using JUnit, integration testing using JMock and front-end testing using Selenium Webdriver.

Classifiers: Artificial Intelligence

- Implementation of a Seed classifier using unsupervised learning techniques such as clustering,
- Implementation of a Wine classifier through supervised learning techniques such as decision trees,
- A multi-layered neural network to solve the XOR problem
- Proven ability to effectively implement and utilize advanced machine learning techniques to solve complex problems, all accomplished through R.

Greenhouse Monitoring System

- Implemented a practical greenhouse monitoring system utilizing the Engduino microcontroller
- Utilized C in the Arduino IDE and Processing 3 to visualize temperature and light levels over time through line graphs

Bargain-R-Us Database System

- Designed an internal website for product and shipment management.
- Utilized ASP.net and Microsoft Access to manage databases and streamline business processes, and was displayed using HTML and CSS developed through Adobe Dreamweaver.

WORK EXPERIENCE

Intern: Chicken Cottage 09/21 - 09/22

- System analysis and requirement gathering through stakeholder meetings and communication (CEO/ Financial Manager/ Supply-Chain Manager/ Delivery Drivers).
- Developed system automation for numerous business processes including Communications, Ordering, Invoicing, and Customer Service.

Associate Teaching Assistant: Department of Computer Science (Brunel) 09/20 – 09/21

- Achieved an outstanding academic performance within the entire department.
- Selected as an associate teaching assistant from a cohort of 250 students in which high performers were chosen to participate.
- Assisted undergraduate students in lab sessions, aiding them with logic fundamentals and introductions to programming.
- Scheduled VIVA sessions with students and their code to check code understanding and ownership.

Mathematics Tutor: Private 09/16 – 02/17

- Critically analyzed overall performance of students and identified key areas of weaknesses.
- Prepared learning materials for each student and provided one-on-one learning.
- Conducted meetings and prepared feedback for students and guardians.

Mathematics Tutor: Outreach Learning 11/15 – 05/16

- Completed paperwork regarding students' work and performance.
- Provided one-to-many tuition to multiple students simultaneously.

SKILLS

Computer Languages

- Java, JavaScript, Python, C, R, HTML, CSS

Technical skills

- Full-Stack: Spring Boot, Django, ReactJS, JPA, Thymeleaf, MySQL, Haskell & ERP-Integration: Xero Web-API
- Microcontrollers: Arduino, Engduino, Finch Robot (all in C)
- Web-Browser Automation: Selenium Web driver (testing and data collection)
- Artificial Intelligence: Supervised, Unsupervised (R)
- Testing: JUnit, JMock, Mockito, Selenium Web driver

Soft skills

- Teamwork, Adaptability (Agile), Analytics, Written Communication, Documentation, Problem-Solving, Observation, Logical Reasoning, Decision Making, Collaboration, Coordination, Experimentation, Commitment, Dependability

Languages

- English (First), Malay (Native), Norwegian (Beginner)