Hana Ahmed-Mahmoud

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I am a dedicated second-year Computer Science student, passionate about using my skills and knowledge to drive positive change in the tech industry, particularly by inspiring young women to pursue careers in computer science. With a confident, enthusiastic, and curious mindset, I actively seek out challenges that foster growth and learning. As I continue my studies, I am eager to explore research possibilities that will help me build the foundation for a PhD after my undergraduate studies. My goal is to graduate with a First-Class degree while sustaining my drive and determination.

Education

MSci Hons Computer Science, University of Nottingham Expected Result: 1st **2023 – Present**

• Developed strong programming, problem-solving and hardware knowledge through the modules "Systems and Architecture" and "Computer Fundamentals" (97%, 98%) which focused on low-level programming and innovated and analytical solutions to problems. Enhanced high-level programming skills in Java, Haskell and C through the modules "Programming and Algorithms" and "Programming Paradigms" (88%, 80%) by designing algorithms that facilitate efficient storage and manipulation of data and applying the basic principles of object-oriented and functional approaches to programming.

• Demonstrated proficiency in handling large data sets using Python by analysing a movie database, effectively using pandas to filter, clean and group data and matplotlib to visualise the results. Attaining 80% in the "Fundamentals of Artificial Intelligence" module.

• Selected as one of the students to study abroad at the University of Auckland for a semester during the spring of 2025; an opportunity offered to a select group of students based on academic performance and passion for gaining a global perspective of computer science.

Kesteven and Grantham Girls School **2016 – 2023**
A-Levels: Mathematics (A*), Computer Science (A*), Physics (B)
GCSEs: 11 GCSEs, 5 9s, 6 8s (including Physics 9, Mathematics 8, Further Mathematics 8)

Relevant Experience

SafelyHome – Volunteer Software Developer **11/2024 – Present**
• Contribute 3-4 hours per week as a volunteer developer for SafelyHome, a non-profit mobile application designed to enhance student and public safety on nights out.
• Gained real-world experience in agile development, UI/UX design, and feature deployment, reinforcing problem-solving and research-driven skills.
• Strengthened expertise in React Native, Expo, TypeScript, and Git, while collaborating with a volunteer-driven team to iterate on new features.

IEUK Experience 2024 **06/2024| 09/2024**
• Selected as one of 50 students from over 10,000 applicants (top 1%) for exceptional engagement, leading to an exclusive in-person networking event with BT Group in September
• Developed key leadership and project management skills by assuming the role of project manager in a Deloitte-led scenario-based exercise. Completed a hands-on work sample project, enhancing understanding of software engineering methodologies as well as networking with representatives from various companies such as PwC, CrowdStrike and Lloylds Baking Group

Tutoring **09/2023- Present**

• Provided one-on-one tutoring to four GCSE students in subjects including mathematics, physics, and computer science, enhancing students understanding and academic performance through effective communication and personalised study strategies, resulting in an average improvement of 1 to 2 grades

Kitronik- Technology Company **04/2022**

• Wrote a blog post teaching aspiring programmers how to code a simple reaction game using the programming paradigms OOP and incorporating matrix operations and electronic hardware
• Communicated technical concepts to a non-technical audience, utilising thoroughness and attention to detail to ensure clarity and accessibility for readers of varying skill levels
• Securing a deeper understanding to how the technological industry works, software development and the day-to-day life of a software engineer

Positions of Responsibility

Computer Science Mentor, University of Nottingham **09/2024 - Present**

• Provided academic and pastoral support to 30+ 1st year students to support their transition into university life, receiving excellent feedback for communication and interpersonal skills
• Facilitated a workshop on effective note-taking techniques for 70 new students, sponsored by Notion, enhancing academic performance through innovative technology utilisation

EDI Officer for UONs Women in Computer Science Society **11/2023 - Present**

• Promoted diversity and inclusion through advocating on social media for society
• Collaborated with team and university staff to host events for computer science students
• Co-ordinated Ada Lovelace Day for the University, an outreach event aimed at encouraging more young women into technology. Led workshops for 40 students, covering reinforcement learning fundamentals and coding with Microbits

Awards

Silver Scholarship for Excellence in Computer Science **2023 – Present**

• One of a select few students at the University of Nottingham School of Computer Science first years to receive 25% off tuition fees due to outstanding A-Level performance and enthusiasm towards Computer Science. Due to consistently high grades at university and achieving an average of 86% in year 1, this was extended into my second year of study.

Personal Projects

Squid Game Survival Prediction Model **01/2025**

• Applied curiosity-driven development to explore the intersection of AI and pop culture, designing a machine learning model to predict survival outcomes in Squid Game's "Red Light, Green Light."
• Scraped and preprocessed character data from the Squid Game Wiki using Python, BeautifulSoup, and pandas, handling missing values and outliers.
• Developed a Decision Tree Classifier (scikit-learn) to predict survival, achieving 85% accuracy on a 70:30 train-test split

Application Development **08/2023- Present**

• Started to develop "Your Yarn" app, enabling users to virtually catalogue their wool and yarn collections, demonstrating proficiency in mobile app development with Swift and creativity
• Built an interface for the app, demonstrating skills in user experience and user interface design principles to enhance user engagement and satisfaction

• Started implementing a robust backend system to securely store and manage user yarn inventory data, highlighting expertise in database management, data storage, and data retrieval techniques

Technical skills

- Python
- HTML, CSS, JavaScript
- Java
- React, TypeScript
- Swift
- C
- C#
- Haskell
- TypeScript

Interests

• Completed a self-directed AS Further Mathematics online course from ImperialX and a two-week course with Fujitsu, showcasing a proactive approach to acquiring new knowledge and skills relevant to the industry.
• Achieved a distinction in grade 8 violin, demonstrating strong time management skills by consistently balancing weekly rehearsals with academic commitments.