# Hana Ahmed-Mahmoud

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I am a dedicated third-year Computer Science student with a strong interest in Human-Computer Interaction (HCI) research. Passionate about using my skills and knowledge to drive positive change in the tech industry, I am particularly motivated to inspire 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**

• Competitively selected to study abroad at the University of Auckland (Spring 2025), a globally ranked research-intensive university. This international experience fostered independence, adaptability, and cross-cultural collaboration, enriching my academic perspective and strengthening my ability to work within diverse, global research teams.

• Developed programming and problem-solving skills in Java, Python, Haskell, and C through Data Structures & Algorithms (83%), Programming Paradigms (80%), and Developing Maintainable Software (77%), focusing on clean, maintainable code, version control, and scalable software design.

• Excelled in Human-Computer Interaction (95%), designing intuitive, user-centric interfaces, conducting usability testing, and applying UX principles to enhance software accessibility.

• Strengthened teamwork, project management, and collaborative software engineering practices through Software Engineering Group Project (86%), applying Agile workflows, collaborative development, and testing strategies.

• Built logical and analytical skills through Mathematical Foundations of CS (89%) and Introduction to Formal Reasoning (79%), supporting effective algorithm design and problem-solving.

**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

**Empathetic Computing Lab - Research Intern, University of Auckland** **04/2025 – 10/2025**
• Contributed to a research project on repurposing the Wii Balance Board to collect balance data for researchers, medical professionals and game developers
• Co-authored a research paper (in preparation for submission to the CHI Conference 2025) detailing the system architecture, React Native implementation, and usability studies as well as survey data collection and data visulation
• Designed Figma prototypes, supported data analysis, and collaborated across the full research process.

**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- 09/2024**
• 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

## Positions of Responsibility

**Computer Science Senior Mentor, University of Nottingham** **09/2024 - Present**
• Provided academic and pastoral support to 30+ first-year students, with outstanding feedback on communication and mentorship.
• Designed and delivered a Notion-sponsored workshop on academic note-taking for 70 students, integrating technology to improve research and study practices.
• Collaborated with lecturers to produce supportive learning materials that improved first-year outcomes in challenging core modules.

**President of UONs Women in Computer Science Society** **06/2025 - Present**
• Lead a committee of 10 in delivering events, workshops, and outreach initiatives aimed at empowering women in technology and fostering an inclusive community.
• Drive collaboration with industry partners and academic staff to expand networking, mentorship, and career opportunities for members.
• Organised flagship events such as Ada Lovelace Day, engaging 100+ participants, while ensuring smooth society operations and strategic planning.
• Started as the EDI officer progressing into presidential role

## 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. Extended to second year of study due to consistently high grades at university and achieving an average of 86% in year 1

**Outstanding Achievement for HCI** **July 2025**
• Awarded from the University of Auckland for achieving 95% in the HCI module. Recognised for innovative project work applying usability evaluation methods, accessibility principles, and participatory design techniques. This achievement reflects both academic excellence and a strong aptitude for research in user-centered computing.

## Personal Projects

**Virtual Photobooth** *(React Native, Firebase)* **07/2025-Present**
• Created an app connecting two users to a shared database for real-time photo interactions.
• Designed low-fidelity and high-fidelity prototypes, implemented live backend integration.
• Developed understanding of synchronous interaction design and database management.

**Code Blue** *(Godot Engine, GDScript)* **03/2025-06/2025**
• Collaborated on a game simulating patient care during a zombie apocalypse, themed around “crash.”
• Designed real-time event handling and game mechanics, exploring links between gaming and simulation research.
• Gained experience in team-based software development and iterative design.

**Thunderdome Weather Machine** *(React Native, APIs)* **03/2025**
• Built a website that simulates historical weather/natural disasters on a user’s birth date.
• Integrated weather API data and prototyped the front-end experience.
• Explored the role of playful design and data visualisation in engaging users with environmental datasets

**Personal Website** *(Next.js, React, Tailwind CSS, Vercel, GitHub)* **01/2025**
• Created and deployed a personal portfolio site showcasing projects and experience, with responsive UI/UX design.
• Developed a component-based architecture with React and Tailwind, ensuring scalability and ease of future expansion

**Squid Game Survival Prediction Model** *(Python, scikit-learn, BeautifulSoup, pandas)* **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** *(Swift, Figma, Firebase)* **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
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## Research Interests

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• **Human-Computer Interaction (HCI):** Exploring how interactive systems can improve accessibility, inclusivity, and usability across diverse user groups.
• **User-Centered Design:** Applying participatory design, prototyping, and usability testing to create technologies that priorities empathy and user well-being.
• **Technology for Social Good:** Investigating how computing can address real-world challenges, particularly in healthcare, safety, and community building.
• **Cross-Cultural Perspectives in HCI:** Understanding how global study experiences (e.g., New Zealand exchange) inform the design of technology in different contexts.

## Interests

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• 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.