Judy Abuquta

Computer Science Major
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Education

Effat University, Jeddah, KSA 2022 – 2026 (Expected)
Bachelor of Science in Computer Science, Artificial Intelligence Specialization
Enrolled in university at 15 years old.
GPA: 3.63 / 4.0

Al Waha International School, Jeddah, KSA 2019 – 2022
Earned 8 IGCSE O-Level Subjects.
Earned equivalent to high school diploma at 10th Grade.
GPA: 3.96 / 4.0

Selected Projects

BickerBench 2025 – Present

- Graduation project: a framework for testing how well language models hold up under adversarial pressure.
- Uses a loop of AI agents where one agent tries to break the model with increasingly difficult prompts, another evaluates the responses, and the findings feed back into the next round; so the pressure evolves rather than repeating the same attacks.
- Supports testing multiple models at the same time and produces a scored breakdown of where each model struggled.

Edge-Native Agentic NLP for Smart City Traffic Coordination 2025 – Present

- A smart-city traffic simulation where AI agents communicate in natural language to coordinate traffic decisions in real time; no hardcoded rules.
- Each agent has a role: one reads sensor data and describes what's happening on the road, one detects and classifies incidents, and one decides how to respond using a map of roads and hospital routes.

ML Health Risk Analysis 2026

- Building machine learning models that predict patient health risks while remaining reliable when real-world data shifts away from what the model was trained on.
- The core challenge: knowing when to trust a prediction and when to flag that conditions have changed; important in any clinical setting where safety matters.

ML for Student Placement & Salary Prediction 2025

- Built two models: one predicts whether a student will get hired (84% accuracy), the other estimates their expected salary; both trained on academic and professional data from a Saudi context.
- Found that work experience increased placement probability by 31 percentage points, and nearly 90% of salary predictions landed within 5,000 SAR of the actual value.

Selected Papers

Edge-Native Agentic NLP for Smart City Traffic Coordination 2025

- Explored how AI agents can coordinate traffic decisions in real time using natural language and semantic reasoning rather than fixed rules.
- Covered the architecture of multi-agent systems for edge computing environments, including retrieval-augmented decision-making and knowledge graph integration.

Student Employability and Salary Prediction Using Machine Learning 2025

- Published research presenting the dual ML framework above, with a full comparative evaluation of classification and regression models across integrated datasets.

Strengthening IoT Security: A Comprehensive Approach to Zero Trust Implementation 2024

- Examined how Zero Trust security principles, where nothing is trusted by default even inside a network, can be applied to IoT environments to reduce exposure to attacks.

A Comprehensive Study of Security Mechanisms in Software Engineering 2024

- Reviewed how security practices are integrated across the software development lifecycle, covering threat modeling, static analysis, and DevSecOps workflows.

Recent Advances in Memory Management for Operating Systems 2023

- Compared recent approaches to how operating systems manage memory, analyzing their trade-offs in performance, safety, and scalability.

Awards & Scholarships

Queen Effat Citizenship Award — Nominee 2025
Institutional nomination recognizing leadership, citizenship, and community engagement.

Excellence Scholarship (50%) 2024
Renewed additional merit scholarship covering half of tuition, awarded for academic performance.

Merit-Based Scholarship (50%) 2022
Awarded on university entry for IGCSE academic excellence and early graduation at age 15.

Certifications

- **Intro to Model Context Protocol**
  Anthropic
- **MCP: Advanced Topics**
  Anthropic
- **Introduction to Subagents**
  Anthropic
- **Neural Networks and Deep Learning**
  DeepLearning.AI
- **Supervised ML: Regression & Classification**
  DeepLearning.AI
- **Exploratory Data Analysis for ML**
  IBM
- **Introduction to Artificial Intelligence**
  IBM
- **Cybersecurity Tools & Cyberattacks**
  IBM
- **Generative AI: Intro and Applications**
  IBM
- **Text Retrieval and Search Engines**
  University of Illinois Urbana-Champaign
- **Foundations of Project Management**
  Google
- **Leadership Communication: Storytelling**
  Northwestern University