

# Syed Muhammad Ammar

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## EDUCATION

### • B.E. Software Engineering

Nov 2021 – Jun 2025

NED University of Engineering and Technology

◦ CGPA: 3.55 (Transcript)

## PUBLICATIONS AND PATENTS (SUBMITTED)

### [1] GreenCrop.ai: Smart Solution for Precision Farming, and Resource Efficiency

S. Zardari, **S. M. Ammar**, M. Osama, S. Sahil, H. Shahid, M. Ullah

Submitted to **Remote Sensing Applications: Society and Environment**, 2025.

### [2] AI-Generated Code: Security Risks vs. Productivity Gains — A Systematic Review

S. Zardari, M. Osama, **S. M. Ammar**, A. Siddiqui, M. Gupta, A Nanthaamornphong

Submitted to **Applied Sciences**, 2025.

### [3] Patent: GreenCrop.ai: Smart Solutions for Precision Farming, and Resource Efficiency

Inventors: S. Zardari, **S. M. Ammar**, M. Osama, S. Sahil, H. Shahid

**Patent Application Filed (Awaiting Number).**

## EXPERIENCE

### • Software Engineer

Apr 2024 – Present

Private Client (Healthcare)

Brooklyn, USA (Remote)

- Developed an LLM-based student ranking system that analyzes application materials to help professors identify best-fit candidates.
- Engineered a medical educational app with AI-driven question generation, real-time database integration, and optimized data fetching to reduce costs and improve performance.
- Built a web platform for database management and pipelines for structured data storage and retrieval.
- Led a team of 2 developers, providing code reviews and technical guidance.

### • Software Engineer Intern

Jan 2024 – Apr 2024

MetaTalent.ai

London, UK (Remote)

- Built an admin panel and custom dashboards for platform-wide management and user personalization.
- Developed the Skill Assessment Module with React, Next.js, Node.js, and MongoDB, integrating full-stack functionality.
- Designed RESTful APIs and optimized MongoDB schemas for efficiently communicate and manage data.

### • Software Engineer Intern

Aug 2023 – Sep 2023

Evincible Solutions

Karachi, Pakistan

- Developed a house inspection app and custom components in Power Apps, streamlining property inspections.
- Designed a chatbot for a hotel booking system using Power Virtual Agents, automating reservations.
- Automated workflows with Power Automate, improving business efficiency.

## ACHIEVEMENTS AND AWARDS

### • Runner Up – IEEE YESIST12 Global Competition (Regional Finals)

May 2025

- Secured 2nd place in the IEEE YESIST12 Regional Finals 2025 with an innovative agricultural solution, following qualification through the IEEE Karachi Section.

### • 1st Place – HackFest X Datathon 2025 (Google Developer Groups – IBA)

Apr 2025

- Participated in a Shark Tank-style event and secured 1st place among the top 10 finalist teams.

### • Climatech International Conference 2025

Jan 2025

- Presented my work (AgriSense) in the conference in front of industry leaders and researchers.

### • Runner Up – CodeSphere'23

Dec 2023

- Secured 2nd place among 100+ participants in CodeSphere'23, a programming competition featuring DSA and OOP challenges.

## TEACHING & LEADERSHIP

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### • CODE IN PLACE 2025, Stanford University

Apr 2025 – Jun 2025

Section Lead

- Instructed virtual classes for a cohort of 10–15 students in **CS106A: Introductory Python Programming**.
- Conducted weekly sessions providing guidance, addressing questions, and supporting students' coding learning journey.

### • Google Developer Group on Campus

Oct 2023 – Jun 2025

Partnership Team Lead

- Recruited and mentored team members, strengthening the club's impact.
- Wrote proposals and established partnerships with tech companies and to fund events and provide student exposure.
- Organized workshops and tech events for 300+ students, managing promotions and boosting attendance.

### • NED Software Community

Mentor

- Gave sessions mentoring juniors on final year projects and introduced freshmen to emerging technologies.

## PROJECTS

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### • GreenCrop.ai (AgriSense): AIoT-Enabled Smart Farming System

Technologies: *React Native, NestJS, FastAPI, TensorFlow, LangChain, PostgreSQL, LLMs, ESP32, Azure*



- Engineered comprehensive AI/ML agricultural solutions including disease detection system (90% accuracy), crop recommendation engine (85% prediction improvement), and intelligent decision support leveraging Generative AI with RAG pipelines.
- Led cross-functional team of 4 through complete product development cycle, delivering React Native frontend with dynamic features and NestJS backend APIs with integrated payment processing and PostgreSQL database.
- Designed and deployed IoT hardware integration using ESP32 with solar energy efficiency, implementing multi-platform deployment across Microsoft Azure, Hugging Face, and Render for scalable operations.
- Secured investor interest through high-impact presentations, authored research paper and prepared patent application (both under review) demonstrating innovation in precision farming technology.

### • SoulSupport: A Mental Health Website

Technologies: *ReactJS, Node.js, Express, Tailwind, OpenAI, Stripe, MongoDB, Mongoose ORM, GitHub*



- Implemented backend functionalities using Node.js and Express to handle user authentication and data storage.
- Integrated a video call feature using ZegoCloud to enable users to connect with mental health professionals for virtual consultations.
- Utilized OpenAI's API to build an AI-powered chatbot offering instant support and empathy to users.
- Integrated a payment system using Stripe for seamless payment collection and payouts.
- Developed a dynamic blog section where users can access and read informative articles on mental health topics.
- Designed and optimized database models in MongoDB using Mongoose ORM for scalable data storage and retrieval.
- Collaborated with team members to integrate their designs and features seamlessly with the backend.

### • ResearchRank: A Student Ranking

Technologies: *Firebase Auth, Firebase Database, OpenAI API, GitHub, JavaScript, React, Vercel*



- Developed an AI-driven system to rank students based on their research output, Statement of Purpose, and Letters of Recommendation, using criteria like journal impact factor and publication status.
- Implemented Firebase Authentication for secure user login and a customizable scoring system allowing programs to select desired characteristics and rating weightages.
- Integrated OpenAI API to analyze and evaluate SOP and LORs for scoring and ranking.

- Used Firebase Database to store and manage student information for future use, ensuring efficient data handling.
- Developed PDF generation to produce detailed reports for each student, allowing easy access to ranking results.
- Collaborated closely with the stakeholder, providing feedback and proposing efficient development strategies to meet the project's goals.

### • **Scrubub: Medical Education App**

*Technologies: React Native, Firebase, Next.js, Netlify, Tailwind CSS, OpenAI API*

- Architected and deployed a cross-platform medical education application using React Native with Expo, serving healthcare students with personalized learning experiences.
- Implemented secure Firebase Authentication with phone verification, establishing robust user identity verification while maintaining seamless onboarding.
- Engineered an optimized database schema in Firebase, reducing query complexity and improving read/write performance for critical app functions.
- Integrated OpenAI API to develop an intelligent question generation system that automated creation of 18,000+ medical exam questions, drastically reducing content creation time.
- Led development of a comprehensive social learning feature with friend search, connection management, and collaborative study tools.
- Spearheaded CI/CD pipeline setup and managed iOS and Android deployment processes, ensuring consistent and reliable releases.
- Led a team of two developers through agile development cycles, implementing code review protocols and technical documentation standards.
- Conducted regular stakeholder meetings to gather requirements, demonstrate progress, and align development priorities with business objectives.

### • **GoatLang: A Programming Language**

*Technologies: JavaScript, React, Node.js, Express.js, Babel, GitHub, Trello, Vercel*



- Developed a GoatLang Compiler to tokenize code, create an Abstract Syntax Tree (AST), and use Babel to evaluate and display output.
- Built a Website-Based Playground for coding, testing, and learning GoatLang with built-in resources.
- Added an AST Viewer to visualize how GoatLang processes code, providing insights into the AST.
- Applied Data Structures and Algorithms (DSA) and Object-Oriented Programming (OOP) to design efficient parsing and language components.
- Worked with a team of 5 to solve complex problems, showing strong teamwork and problem-solving skills.
- Contributed to technical documents, including the Proposal, Software Requirements Specification (SRS), UML Diagrams, and Project Report.

## SKILLS

- **Programming Languages:** Python, JavaScript, C++, TypeScript
- **AI & Machine Learning:** PyTorch & Tensorflow(beginner), LangChain, RAG, Agentic AI
- **Technologies:** React, React Native, Next.js, Node.js, Express.js, NestJS
- **Database Systems:** PostgreSQL, MySQL, MongoDB, Firebase, VectorDB
- **Tools:** GitHub, Figma, Postman, UML, Latex

## COURSES AND CERTIFICATIONS

- **Stanford.ai (Coursera):** Machine Learning Specialization (in-progress)
- **Meta (Coursera):** HTML and CSS in depth, React Basics & Advance
- **Jawan Pakistan:** UI/UX Designing
- **Jawan Pakistan:** Front-End Web Development
- **Frontend Masters:** Intro to Node.js, API Design in Node.js