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# MUHAMMAD HAMZA

## CURRICULUM VITAE

### LEADERSHIP ROLES/ INITIATIVES / POSITIONS

**Founder, SitaraMakers | Custom-Engineered DIY STEM Kits** Oct 2024 - present

- Curriculum Designer
- Designed **assembly manual** and Engineered **Pakistan's first low-cost** DIY balloon-powered car, **assembled in under 5 minutes**, with a **production cost under 50 PKR** and **90% recyclable materials**.
- Focused on creating affordable and sustainable STEM kits for underprivileged children, distributed through NGOs to promote hands-on learning and engineering exploration.
- Led STEM workshop in School and Taught Bachmates how to build prototypes and create similar initiatives
- Led another STEM workshop at Begum Inayat Foundation **engaging 50+ children, who made the balloon powered car and at the end raced with it to get learning outcome**

**Founder & CEO, CondensedAI | Youth Tech Startup** May 2024 - present

- Developing affordable AI tools to enhance quality of life, starting with mental health (emotion-expressing robot) and expanding to physical mobility (future prosthetics R&D).
- Researching adaptive AI companions to reduce stress in high-pressure workplaces, using low-cost hardware and emotion-sensing algorithms.

**Founder, Project "SERPA" | WWF-Pakistan eco-internship** Jun 2024 - Aug 2024

- Founder of eco initiative "PROJECT SERPA" sustainable environmental restoration and planting Alliance
- Led educational seminars at Children's Library Complex and Alif Laila Library, engaging **70+ students per session**.
- Designed and managed digital content, optimizing projector visuals for seamless presentations.
- Conducted Expert Interview on waste management
- conducted **10+ public interviews** and **raised 20,000-PKR for plantation drive** and plastic removal
- successfully planted **20 Fruit bearing plants with a total cost of 50,000-PKR** at askari X park

### INTERNSHIPS / WORK EXPERIENCE

**Terfort Company | Game Development Intern | with stipend | 40 Hours** Jan 2025 - feb 2025

- Designed game environments in Unity, improving performance **by 15% on Android and iOS**.
- Conducted backend coding, analytics, and testing, **ensuring 98% functionality** in pre-release games.

### RESEARCH / PERSONAL PROJECTS

-May 2025

- Research paper published on the Metacognitive strategies differ across Academic levels and influence success: A cross-sectional study. - **International Journal of Scientific Research and Modern Technology**.

**ESP8266 microcontroller expressive robot | 1-year development** Nov 2023 - Nov 2024

- Developed a user-friendly desk pet robot with a 128x64 OLED screen, using individually bitmapped graphics.
- Wrote and optimized over **10K lines of code** to implement five distinct facial expressions and corresponding sounds in a single-loop architecture (**first in Pakistan**).
- Created an physical companion, providing real-time emotional feedback and enhancing user interaction in a desk environment for office workers

**Arduino Microcontroller Projects** Nov 2023 - Nov 2024

- Built a robotic arm using 3 servos and 2 joysticks, constructed with popsicle sticks.
- Created a mobile phone-controlled Bluetooth motorboat with complex soldering and calibration, utilizing air as thrust.
- Designed a one-of-a-kind mechanical projector using static image swapping, achieved by precisely timed servo actions.

## COMMUNITY SERVICE

### Director Media, | Sahara-e-umeed NGO

Dec 2023 - present

- Managed social media accounts, utilizing data analytics to drive **10K+ engagement** and **50K+ views**.
- Created and designed media content, editing videos for monthly projects, each averaging **3K+ views**.
- **edited 4 Research and Publication articles**
- Since its inception, Sahara-e-Umeed, **a team of 15 dedicated members** across four departments—**Media**, Research, Finance, and Operations—has raised an impressive 700,000 PKR through various community-driven charity projects. **As the Director of the Media Department, the highest position in the department, I have been deeply involved in every project.** My leadership and hands-on contributions have played a crucial role in the success of these initiatives, with all our work proudly **featured on the organization's Instagram page @saharaeumeed**.

### Volunteer – Behtar Mustaqbil Foundation

Oct 2024 - present

- Led 2 fieldwork projects, improving lives through educational and infrastructure initiatives, impacting 200+ individuals.
- Collaborated with naik Nawalay NGO and home charity trust Organization to organize and execute fun activities, snacks and learning activities designed for children.

## COMPETITIONS

- **Winner of SparkTank pakistan LaunchPad 2025 cohort 3 (550+ applicants nationwide) - National level**
- **TOP 10 - pakistan mathematical modelling challenge - National level (200+ participants)**
- **Project Finalist - International learners agency paradigm (conference) Innovation maze category ( selected out of 300+ applicants nationwide) (2025) - international level**

## GRADES AND SUBJECTS

### Beaconhouse Defence Campus

AS Level | August 2024 – Present

- Studying Mathematics, Further Mathematics, Computer Science, and Physics
- 1A\* 5As 1C, IGCSEs completed in June 2024.

## TECHNICAL SKILLS

- Project Prototyping
- Website development
- Graphics Designing

- Machine Learning Algorithms
- Project Management
- User Research