Kashif Alam

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Career Objectives

I am a Computer Systems Engineering graduate and AI Engineer with hands-on experience building production computer-vision systems at C4Micro Tech. I've designed, trained, and deployed real-time object detection and anomaly-detection pipelines for edge devices, improving model robustness and inference performance for embedded deployments. My day-to-day work includes developing and optimizing CV/ML models (PyTorch / TensorFlow, OpenCV, YOLOv8, U-Net / Mask R-CNN workflows), converting research prototypes into reliable product features, and implementing model-compression and porting pipelines for efficient edge inference. I built end-to-end ML workflows and services — from dataset curation and annotation (Roboflow and a custom team annotation tool) to automated validation, inference APIs (FastAPI), containerized deployment (Docker), and scalable embedding/search components (Qdrant/Postgres). For my FYP, "AI-Powered Virtual Try-On (IDM VTON)", I led research and implementation to mitigate logo distortion, improve cloth fitting, and produce realistic 2D fabric simulation — giving me strong practical experience in data augmentation, loss design, and evaluation for visually sensitive CV tasks. I'm motivated to apply this blend of production engineering, model optimization for embedded platforms, and applied research to build safety-critical, scalable vision features that help make roads and fleets safer.

WORK EXPERIENCE

AI Engineer at C4Micro Tech **September 2025 – Present**

C4micro is a software/technology service provider working out of Pakistan for its clients based in Europe.

- Designed and deployed generative-AI systems (RAG/NLP) and robust document ingestion & embedding pipelines OCR, table/figure extraction, semantic chunking, metadata-aware/incremental embeddings to improve retrieval accuracy and enable AI-driven support and lead-generation workflows; containerized services and documented architecture for reproducible deployments.
- Built and productionized computer-vision and ML workflows real-time object detection and anomaly detection for edge use, end-to-end data-science pipelines for annotation/augmentation/model evaluation, and integrated vision features with generative-AI components through cross-functional collaboration.
- Technologies Used: Python, Transformers, RAG, OCR, Embeddings, YOLOv8, OpenCV, TensorFlow, PyTorch, Docker, Postgres, Qdrant, FastAPI, NLP

Academic Projects

1. **RAG Production App — Retrieval-Augmented Generation for PDF Documentation**
   - Designed and implemented a production-ready RAG pipeline to convert PDF manuals and documentation into conversational knowledge by combining intelligent PDF chunking, metadata enrichment, and semantic embeddings.
   - Built a scalable embedding orchestration layer (OpenAI) with batching, retry/backoff and rate-limit handling to improve throughput and reliability for high-volume ingestion.
   - Integrated Qdrant for low-latency vector search and FastAPI + Inngest for event-driven background ingestion and processing.
   - Delivered a developer-friendly Streamlit UI for PDF upload, interactive QA and demos, and authored a pytest suite to validate ingestion, embedding and query workflows.
   - Applied production best practices (secret management, observability guidance, backup strategy and deployment-ready project structure) to enable safe, maintainable operations.
   - Technologies Used: Python, FastAPI, Streamlit, OpenAI (embeddings), Qdrant, Inngest, Docker, pytest

1. **Virtual Try-On Technology Transforming Fashion with AI and Realistic Simulations (FYP)**
   - Description: Developed an AI-driven virtual try-on system to provide realistic clothing simulations and

improve online shopping experiences. Employed Python and OpenCV for image processing, integrating deep learning models and a custom LDMS algorithm to ensure accurate garment fitting and preserve brand logos. Addressed common virtual try-on challenges such as brand logo distortion, poor garment fitting, and unrealistic fabric simulation through advanced computer vision and deep learning techniques. Achieved high-fidelity garment draping and texture rendering to maintain brand authenticity, enhance user trust, and deliver an immersive e-commerce shopping experience.

- Technologies Used: Artificial Intelligence (AI), Deep Learning, LDMS (Logo Distortion Mitigation System), Image Processing, Python, OpenCV.

2. NGO Raana (Digital Scam Awareness Initiative)

- Description: In response to the growing threat of digital scams that prey on vulnerable populations, I initiated a comprehensive survey at my university and nearby educational institutions to understand the extent of the problem. The data revealed alarming trends: many below-middle-class families were falling victim to pyramid schemes and other fraudulent digital practices. Shocked by these findings, I took action by organizing a series of awareness events across my university, local institutions, and even in my village. These events focused on educating community members about the tactics used by digital scammers, how to recognize fraudulent schemes, and practical steps to safeguard their finances. This journey of research, community engagement, and education inspired me to establish NGO "Raana" – meaning "Light" – with the mission of spreading knowledge and understanding, ultimately empowering individuals to navigate the digital world safely.
- Technologies Used: Google Forms (for surveys), Python (Pandas, NumPy, Matplotlib for data analysis), and various digital communication tools for event coordination.

3. Brain Tumor Segmentation Project

- Description: Developed a deep learning model to segment brain tumors from MRI scans, enhancing diagnostic accuracy and aiding clinical decision-making.
- Technologies Used: Python, TensorFlow/PyTorch, Keras, OpenCV, NumPy.

4. Doctor App in Flutter

- Description: Designed and implemented a cross-platform mobile application that allows patients to book appointments, access telemedicine services, and receive real-time health notifications.
- Technologies Used: Flutter, Dart, Firebase, RESTful APIs.

5. Combat Robot for ROBO War Competition — 2nd Year Academic Project

- Description: Designed and built an autonomous combat robot using principles of Digital Logic Design (DLD) and Digital System Design (DSD) to compete in a ROBO War event. Programmed robot behavior using Arduino to enable real-time decision-making, obstacle detection, and combat strategies (e.g., movement control, attack mechanisms). Collaborated in a team to integrate hardware components (sensors, motors, power systems) and troubleshoot electrical/mechanical failures during testing. Applied critical thinking to optimize weight distribution and power efficiency, ensuring agility and durability during high-intensity matches.
- Technologies Used: Arduino Uno, DC motors, ultrasonic sensors, motor drivers (L298N), Li battery systems. Arduino IDE (C/C++), logic circuit simulation tools. Embedded systems programming, sensor integration, iterative prototyping, DLD/DSD fundamentals.

Specialties and Skills

1. Data Science & Analytics Skills:

Python: Proficient in data manipulation, statistical analysis, and building machine learning models.

- SQL: Experienced in querying relational databases for data extraction, transformation, and analysis.
- TensorFlow/Keras: Hands-on experience designing neural networks for predictive modeling and classification tasks.
- Data Visualization: Skilled in creating insightful dashboards and reports using Matplotlib, Seaborn.
- Machine Learning: Implemented regression, clustering, and NLP algorithms to solve real-world problems

in academic projects.

- Statistical Analysis: Applied hypothesis testing, A/B testing, and exploratory data analysis (EDA) to derive actionable insights.

2. Version Control:

Git: Used Git to track changes and collaborate on projects.

- GitHub: Managed code repositories and collaborated on development.

3. Data Analysis and Visualization:

Python: Programmed in Python for various projects.

- Matplotlib and Seaborn: Created static and interactive visualizations.
- NumPy: Performed numerical computing and data manipulation.

4. Programming:

Data Structures & Algorithms: Implemented and optimized data structures and algorithms.

- Object-Oriented Programming (OOP) Concepts: Applied OOP principles to design modular software systems.
- C and C++: Programmed in C and C++ for various projects.
- Verilog: Used Verilog for digital circuit design.
- MATLAB: Familiar with using MATLAB for signal processing and analysis.

5. Leadership & Management Skills:

Leadership: Organized and managed university events, including Ignite (a major tech event in Peshawar), farewell ceremonies, and welcome events.

- Problem-Solving: Found effective solutions to complex challenges in academic projects.
- Management: Managed teams and coordinated events, ensuring successful execution and positive outcomes.

Training and Certification

- Learning Git and GitHub (LinkedIn Learning)
- 100 Days of Code: The Complete Python Pro Bootcamp (Udemy)
- Programming Foundations: Algorithms (LinkedIn Learning)
- Machine learning Specialization by AndreNG (Coursera)
- Flutter App Development (NAVTTC)
- Certification in Signal Processing Onramp from MathWorks
- Workshop on Data Analysis with Python

Academics

Bachelor of Science in Computer Systems Engineering **2021 – 2025**
University of Engineering & Technology Peshawar, KPK

- **Relevant Coursework:**
  - Systems Programming, and Computer Programming
  - Data Structures & Algorithms
  - Object-Oriented Programming
  - Database Management Systems
- **Societies and Organizations:**
  - Member, AWS Cloud Society
  - Member, Computer Society
  - Head Organizer of Welcome party
  - Head Organizer of Farewell party

- **Sports and Extracurricular Activities:**
  - Member, Chess team
  - Volunteer Coach of futsal

Intermediate in Pre-Engineering **2019 – 2021**
Government Post Graduate College, Mardan

- **Societies and Organizations:**
  - Editor and Writer in college magazine
- **Sports and Extracurricular Activities:**
  - Member, Football team
- **Achievements and Awards:**
  - Achieved a top 2 rank among 350 engineering students, as evidenced by academic performance, by consistently excelling in coursework and examinations.

Matriculation in Science **2017 – 2019**
Muhammad Children Academy and College Mardan

- **Societies and Organizations:**
  - Writer in school magazine.
  - Volunteer in thalassemia society.
  - Member of Plantation society.
- **Sports and Extracurricular Activities:**
  - Member, Volleyball and football team
- **Achievements and Awards:**
  - Achieved a top 3 rank among 150 students, as evidenced by academic performance, by consistently excelling in coursework and examinations.
  - Received the Regular Student Award for maintaining perfect attendance, as evidenced by consistent presence, by attending all classes and academic activities for one year.

Volunteer Experience

Volunteer Coach of Futsal
- Led futsal training sessions and organized matches, developing teamwork and leadership skills, resulting in improved team performance by coordinating with other coaches.

Member of Plantation Society
- Led tree planting campaigns and organized environmental education sessions, promoting environmental conservation, as evidenced by increased student participation, by fostering a sense of responsibility among students.

Volunteer in Thalassemia Society
- Organized blood donation drives and awareness campaigns, educating the community on thalassemia, as demonstrated by increased blood donations, by raising awareness about the importance of blood donations.

Event Manager, University Functions
- Managed university events including Ignite, farewell ceremonies, and welcome events, ensuring successful execution, as evidenced by positive feedback and smooth event operations, by coordinating logistics and supervising teams.