

Umair Hassan

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Education	Punjab University College of IT (PUCIT) , Lahore, Pakistan Bachelor of Science in Software Engineering CGPA: 3.71 / 4.00 Relevant Coursework: Data Structures & Algorithms, Distributed Systems, Databases, Machine Learning, AI & Computer Vision	2020–2024
Publications	Umair Hassan. <i>COCO-Urdu: A Large-Scale Urdu Image-Caption Dataset with Multimodal Quality Estimation</i> . Submitted to ICLR 2026. arXiv:2509.09014.	
Research Projects	ViT-Insight: Vision Transformer Attention Explorer GitHub <ul style="list-style-type: none">Developed an interactive platform to visualize per-layer attention maps and compute Attention Rollout in ViT models, tracing how input patches collectively contribute to model predictions across layers and heads.Implemented multi-label support, layer-range selection, and customizable heatmap overlays, enabling detailed exploration of transformer behavior and interpretability for individual images and classes.Generated dynamic GIFs to demonstrate layer-wise attention evolution, facilitating analysis of attention patterns and model decision pathways.Enhanced transparency and trust in transformer-based vision models, providing a tool for explainable AI research and evaluation of vision-language alignment.	2025
	Valorant Object Detection with Google PaliGemma GitHub <ul style="list-style-type: none">Fine-tuned Google PaliGemma-2 (3B multimodal model) using QLoRA (4-bit quantization) for domain-specific object detection in Valorant gameplay.Built inference pipeline with Hugging Face Processor + Model APIs; evaluated performance using IoU, mAP@[0.50:0.95], AP@0.50/0.75, Accuracy, and Recall.Achieved 61% improvement in overall mAP; largest gains on small objects (+75%) indicating strong detection of critical small targets.Released fine-tuned model publicly on Hugging Face for reproducibility and benchmarking.	2025
Industry Experience	Motive Inc. (formerly KeepTruckin) , Backend Software Engineer (L2) Remote, San Francisco, CA <ul style="list-style-type: none">Spearheaded automation for promotional campaigns (Ruby on Rails, Go, PostgreSQL), boosting ATPV from \$500M → \$800M and raising in-network transactions from 42% → 55%, saving \$1M+ in discounts.Built a secure SFTP/FTP integration library in Ruby and data ingestion pipelines (250K records/day) with AWS S3, SQS, Docker, and Kubernetes.Integrated an OCR model into Mastercard transaction spend breakdown using customer receipts, boosting categorization accuracy and reducing financial discrepancies.Acted as primary on-call engineer for transaction gateways, pricing pipelines, and APIs, leveraging Datadog, Kibana, and Python to triage and resolve live issues under strict SLAs.Enhanced observability via Datadog, Redash, and dynamic alerting, improving incident response time and reducing noise.	Aug 2024–Present
Other Experience	CC-211 Object Oriented Programming, <i>Teaching Assistant</i> CC-211-L Object Oriented Programming Lab, <i>Teaching Assistant</i>	Spring 2024 Spring 2024

Achievements	<p>Represented Pakistan at the ICPC Asia West finals — Certificate. Secured Gold (2024) and Silver (2025) medals at the ICPC Asia Topi Regionals — Gold Certificate — Silver Certificate. Ranked 7th nationally (solo) in Meta HackerCup 2023. Recognized among the Top 1% IT graduates by HEC Pakistan. Achieved multiple podium finishes in national programming competitions (PUCON'23, INMIC'24, DAIRA'24, Electrocon'24, Technocon'24, BrainX'24); related medals, trophies, and certificates are listed on LinkedIn Awards.</p>				
Community Involvement	<table><tr><td>PUCON'24 Programming Competition, <i>Judge & Problem Setter</i></td><td>June 2024</td></tr><tr><td>Google Developers Student Club PUCIT, <i>Mentor</i></td><td>April 2024-June 2024</td></tr></table>	PUCON'24 Programming Competition, <i>Judge & Problem Setter</i>	June 2024	Google Developers Student Club PUCIT, <i>Mentor</i>	April 2024-June 2024
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References	<p>Dr. Syed Muhammad Ali Assistant Professor of Computer Science at PUCIT Lahore, Email: muhammad.ali@pucit.edu.pk</p> <p>Dr. Muddassira Arshad Assistant Professor of Computer Science at PUCIT Lahore, Email: muddassira@pucit.edu.pk</p> <p>Prof. Abdul Mateen Assistant Professor of Computer Science at PUCIT Lahore, Email: amateen@pucit.edu.pk</p>				
Technical Skills	<p>AI/ML: PyTorch, OpenCV, CLIP, QLoRA, multimodal QE, model finetuning Programming: Python, C++, Ruby, Go Systems/Cloud: AWS (S3, SQS, EC2, RDS), Datadog, PostgreSQL, Redis, Docker Strengths: Algorithmic problem-solving, research-driven experimentation, computer vision, multi-modal systems</p>				