Ali Bukhari

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Summary

- Computer Vision & Graphics focused **ML-Engineer** with **6+**years in Technical Leadership and Solutions Architecture.
- **Tech Skills:** Python, JavaScript, C++; Pytorch, Tensorflow; FastAPI, React, Docker; Google Cloud Platform, Amazon Web Services; Unreal Engine, Unity AR-Core; GANs, VAEs, Diffusion Models, LLMs, RAG, LangChain

Experience

Senior ML Engineer | Tech Lead Aug 2022 – Present

Appsilon AI *Warsaw, Poland*

- Led the development of comprehensive Generative AI solutions, utilizing modern techniques such as **Diffusion**, **Large Language Models (LLMs)**, and **Retrieval Augmented Generation (RAG)**. Key projects included pioneering work in Text-to-Animation generation (**T2A-demo**), Style-Transfer (**ST-demo**), 3D character reconstruction (**Persona Page**), & high-precision segmentation for various problems in Medical Diagnosis and Biodiversity Conservation.
- Orchestrated client acquisition through targeted outreach and persuasive presentations, coupled with rapid prototyping for effective PoC development. Played a central role in the project lifecycle, from detailed requirements engineering to managing client expectations and diligently tracking progress against established milestones. Aided clients in securing over **$5Million** in funding with meticulously prepared funding proposals and VC pitch decks.
- **Top Achievement**: Utilized state-of-the-art segmentation and rendering techniques to achieve a **62%** reduction in error rates and over **500x** improvement in computation time of plankton health metrics. This enabled groundbreaking analysis of vast, previously untapped **(for decades)** Arctic plankton datasets, and possibly revolutionizing the field. A collaborative research paper with a leading ecologist is currently in its final stages of writing.

Founder | Lead Engineer Dec 2018 – Dec 2020

Psychvdia AI Solutions *Lahore, Pakistan*

- Established and directed a dynamic team of over **30** engineers and business professionals, in a company that provided Artificial Intelligence and Extended Reality based solutions to scientific partners and commercial clients. My role encompassed comprehensive company-level strategy, technical project leadership, & hands-on ML/XR craftsmanship.
- Successfully orchestrated and delivered **9** business-to-business projects, consistently surpassing client expectations in quality and timeliness, generating approximately **$250,000** in revenue.
- **Top Achievements**: Reinvented the receptive field computation process - making it **400** times faster, **10** times more memory efficient, and scalable to **100** times more complex input than the current state-of-the-art solution provided by Allen Brain Institute. Built our very own Photogrammetry pipeline, reducing the time to 3D scan an object to **50%** the original time, by developing AI-driven image pre-processing components for lighting neutralisation.

Machine Learning Engineer Dec 2020 – Aug 2022

DFKI & TUKL *Kaiserslautern, Germany*

- Built and maintained low latency, high-performance scalable systems; designed, implemented, and scaled new APIs, aggregation services, and data-centric micro-services; trained, tested and deployed models; and solved complex problems in document analysis, zero-cost water filtration, and autonomous boat navigation.
- **Top Achievement**: Used a heuristics-based approach to systematically determine optimal values for hyper-parameters in a data-extraction system for hand-filled document archives, improving the text segmentation by **40%** (in terms of area) and boosting the final f1-score (for OCR) from **0.71** to **0.93**.

Computer Vision Engineer May 2017 – Feb 2019

Computer Vision and Graphics Lab *Lahore, Pakistan*

- Employed CUDA Programming and OpenGL in various initiatives, including the design of a custom viewer that enabled accurate translation of annotations between 2D & 3D spaces using classical and ML-based approaches, streamlining workflows by a **factor of 10**. Mentored a cohort of **15+** engineers in Unreal Engine 4 development.
- **Top Achievement**: Used single-shot unconditional GANs to achieve 'carving-level' text-image augmentation on natural surfaces. When the quality of results was tested against human inference, **two-third** of the human subjects were unable to distinguish real photographs from synthetic images.

Education

Lahore University of Management Sciences (LUMS) Lahore, Pakistan

BS (hons) ***Computer Science*** *(3 years of undergrad + 1 year of grad coursework)*

- Prominent Coursework: AI, Machine Learning, Mathematical Foundations of ML, Deep Learning, Computer Vision, Intelligent Computing, Data Science, Hardware Architecture for AI, Cognition & Computers, Computer Graphics