

AHMED AFFRAZ

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SKILLS

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|-------------------------|---|
| Technical Skills | Computer Vision, Digital Image Processing, High-Performance Computing, Deep Learning |
| Programming | C/C++, C#, Matlab, Python, OpenCV, OpenMP, TensorFlow, NVIDIA CUDA |
| Technologies | Linux, Git, Visual Studio, VS Code, Microservices, Containerization (Docker), REST APIs, NVIDIA Nsight Systems, NVIDIA Nsight Compute |

EXPERIENCE

Computer Vision and High-Performance Computing Consultant Jan 2022 - Present

- Providing consultancy for Computer Vision, High-Performance Computing and Machine Learning projects
- Developing parallel algorithms for multi-core CPUs and GPUs to achieve real-time performance
- Upgrading legacy codebases to newer code architectures based on microservices

Computer Vision and HPC Engineer, Purple Gaze Jun 2022 - Dec 2023

- Our team developed a **low-cost/high-fps eye-tracking** system that processes 700+ fps on embedded devices
- Developed algorithms to improve accuracy and speed of pupil tracking

Senior CUDA Engineer, Pangu Technologies Jan 2022 - Jun 2022

- Worked in team of several PhDs to **improve Ethereum mining hashrate**, based on CUDA
- Profiled and optimized the CUDA code by using NVIDIA profiling tools, Nsight Systems and Nsight Compute
- **Achieved speedup of 0.5%** of the mining hashrate. This is within 0.5% of one of the best commercial Ethereum miner, T-Rex

Technical Team Lead, TASC Management Jan 2021 - Dec 2021

- Implemented algorithms for **Jetson Nano using CUDA** to be processed on the edge
- Redesigned the Under Vehicle Inspection System to make it more portable

Head of Computer Vision, Evolve Innovative Solutions (EIS) Aug 2019 - Nov 2020

- Developed **cloth simulation/rendering software** to analyze new styles of clothes, using open-source tools. Designed solution saves quite some man hours compared to commercially available software, Tukatech
- Optimized a photogrammetry rig to produce better results and use %10 fewer cameras

Technical Team Lead, TASC Management Apr 2014 - Jul 2019

- Completely developed the hardware and algorithms to perform real-time inspection of the under vehicles. The designed unit is one of the smallest portable unit in the market
- Implemented a **real-time, multi-threaded image-stitching** algorithm to generate a complete image of under vehicle
- Implemented algorithms to **automatically detect foreign objects** attached under the vehicles
- Designed the structural and optical parts of the hardware using Autodesk Inventor
- Developed optical simulations in Matlab to minimize size of the hardware and making it portable

CERTIFICATIONS AND LICENSES

- Deep Learning Specialization by Andrew Ng (Coursera, 2021)
- Introduction to Parallel Programming in CUDA (Udacity, 2013)

EDUCATION

Bachelor of Computer Science, Lahore University of Management Sciences (LUMS) 2009 - 2013