



TALAL NAFEEES

AI Engineer & Systems Developer

Sialkot, Pakistan | 0327 5964246 | talalnafees.ai@gmail.com

PROFESSIONAL SUMMARY

Aspiring AI engineer and systems developer currently entering the final year of a Bachelor's in Artificial Intelligence at the University of Sialkot. Strong practical foundation in low-level systems programming (C, Linux Kernel APIs), parallel computing (Dask), and deep learning pipeline deployment (TensorFlow, MobileNetV2, LSTM). Proven ability to combine rigorous academic engineering with operational execution.

TECHNICAL SKILLS

Languages

C Python

AI / ML Frameworks

TensorFlow / Keras Dask Distributed CNN / RNN / LSTM

Systems & Tools

Linux Kernel API /proc filesystem Multi-threading sched_setaffinity Git / GitHub

Concepts

Transfer Learning DAGs Knowledge Repr. & Reasoning

TECHNICAL PROJECTS

Intelligent Workload Optimization System (Linux)

C · Linux Kernel API · Virtual Filesystem (/proc, dirent.h)

- Developed a high-performance userspace daemon in C to address resource contention and micro-stuttering in Ubuntu's Completely Fair Scheduler (CFS).
- Implemented manual kernel introspection by iterating through /proc to parse process metadata with zero overhead.
- Enforced hardware-level CPU Affinity (sched_setaffinity) to quarantine background tasks, and applied dynamic priority adjustments (setpriority) to protect critical development workloads.

Smart-City CCTV Violence Detection Pipeline

Python · TensorFlow/Keras · MobileNetV2

- Architected an end-to-end video classification pipeline to evaluate CCTV footage across three classes (Normal, Violence, Weaponized).
- Utilized a frozen MobileNetV2 backbone (ImageNet weights) for spatial feature extraction and trained recurrent sequence models (SimpleRNN vs. LSTM).
- Achieved **98.3% test accuracy** and a 0.983 weighted F1-score using the LSTM model paired with a temporal decision rule.

Parallel Weather Data Processing Using Dask Distributed

Python · Dask Distributed · Pandas · DAG

- Designed a decoupled master-worker parallel processing pipeline to evaluate a synthetic dataset of 3,000,000 records.
- Benchmarked out-of-core parallel execution against sequential Pandas, achieving a **2.70× speedup factor** and a **63% runtime reduction**.
- Modeled computations as Directed Acyclic Graphs (DAG) to optimize execution paths and manage host memory safely.

Knowledge Representation & Reasoning for Optimal Transport Selection

Propositional Logic · First-Order Logic (FOL) · Description Logic · Resolution Proofs

- Formalized real-world decision-making scenarios across five knowledge representation paradigms.
- Validated logical consistency through Forward/Backward chaining and Resolution Proofs (CNF) to derive optimal choices under dynamic conditions.

EDUCATION

Bachelor of Science in Artificial Intelligence (BS-AI)

University of Sialkot

- Completed 6th Semester (Entering 7th Semester / Final Year)
- Roll Number: 19