Imran Nawar

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Education

Bachelor of Science in Computer Science **Sept 2020 - July 2024**
Islamia College University, Peshawar (Pakistan) CGPA: 3.78/4.00

- Undergraduate student supervised by Dr. Muhammad Sajjad
- Final year thesis: "Deep Learning assisted Autonomous Navigation over Economical Hardware"
- Relevant Courses: Artificial Intelligence, Artificial Neural Networks, Digital Image Processing

Research Interests

- Computer Vision and Autonomous Sytems: Scene Understanding and Autonomous Navigation
- Machine Learning and Deep Learning: Algorithmic optimization and real-time performance

Experience

Digital Image Processing Lab (DIP Lab) **July 2024 - present**
Research Assitant Peshawar, Pakistan

- Major reseach topics: Autonomous Navigation, Object Detection, Image Segementation
- Working on research for democratization of Autonomous Driving research.
- Act as Teaching assistant for Data Visualization (DSC 635), Digital Image Processing (COMP416), Advanced Programming (COMP327) courses GitHub Link

Digital Image Processing Lab (DIP Lab) **Nov 2023 - June 2024**
Undergraduate Student Researcher Peshawar, Pakistan

- Worked on Autonomous Driving Project for BS thesis.
- Designed and developed an autonomous navigation prototype on economical hardware (Jetson Nano). Built a platform from scratch, integrating hardware components, optimizing pretrained deep learning models for object detection and road segmentation, and implementing a control module for obstacle avoidance using a single camera.
- Developed an RFID-based door lock system using Arduino microcontroller.

Projects

DIPCar: Autonomous Navigation over Economical Hardware **Mar 2024 - Oct 2024**
Tools: Jetson Nano, SSD MobileNet, FCN ResNet34, TensorRT

- Developed a practical framework for deep learning based autonomous navigation on economical hardware
- Implemented deep learning models for object detection and road segmentation, achieving competitive performance within strict resource constraint

Facial Emotion Recognition: FER through clip encoder **Aug 2024 - Oct 2024**
Tools: CLIP model, Streamlit, PyTorch

- Facial emotion recognition through clip encoder (openai/clip-vit-base-patch32)
- Developed a real-time facial emotion recognition app using Streamlit, integrating fine-tuned openai/clip-vit-base-patch32 with 9 FPS inference.

Youtube Video Transcript Summarizer **June 2024**
Tools: gemini-api, streamlit, youtube-transcript-api, python

- Developed a Streamlit app to summarize YouTube video transcripts using Google's Gemini API.
- Deployed to share.streamlit.io

Technical Skills

Languages: Python, C/C++, HTML/CSS

Frameworks & Libraries: PyTorch, Scikit-learn, Hugging Face, Detectron2, TensorRT, Numpy, Pandas, Matplotlib, Seaborn, OpenCV, Streamlit, Jetson-Inference

Tools: VS Code, Git, GitHub, Jupyter, Kaggle, Google Colab, Vercel, Netlify, Linux, Roboflow, Draw.io, MS Office, Markdown, LaTeX

Core Skills: Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Neural Networks, Data Visualization, Data Structures & Algorithms, Technical Writing, Presentation Skills

Honours and Awards

- **Secured Third Position** in a class with a 3.78 CGPA *2024*
- **Achieved 4.00/4.00 GPA** in the Final Semester (Spring 2024) *2024*
- **Final Year Project Recommended for Funding** by Ignite NGIRI *2024*
- **Awarded a laptop** under the Prime Minister's Youth Laptop Scheme *2024*

Volunteer Experience

- **Financial Coordinator,** DIP Lab *Aug 2024 - Present*
  - Manage lab finances, including budgeting and expense tracking.
- **Mentor,** DIP Lab *2024*
  - Guided undergraduate students in foundational computer vision concepts and research implementation.

Certifications

- Getting Started with AI on Jetson Nano *NVIDIA - Sep* **2024**
- Machine Learning Specialization *Coursera - April* **2024**
- Fundamentals of Digital Image and Video Processing *Coursera - Feb* **2024**
- Matrix Algebra for Engineers *Coursera - Dec* **2023**
- Python for Data Science, AI & Development *Coursera - Nov* **2023**
- Meta Front-End Developer Specialization *Coursera - Jul* **2023**
- Introduction to Python *Datacamp - Oct* **2022**

Other Interests

- Reading, Interesting topic discussions, Fitness, Cricket, Table Tennis, Traveling, Hiking

Referee's are available on request