ABIR DAS

+82 01097831929 · Addyabir111@gmail.com . linkedin://abir-das-0042b1275
Github://AbirDas-5151 . 96-4, Jayang-Dong, Daejeon, South Korea, 34515

ABOUT ME

As an AI Engineer, I specialize in developing innovative solutions in computer vision, natural language processing, and deep learning. With hands-on experience in building scalable AI models and deploying them using advanced frameworks like TensorFlow, PyTorch, and AWS SageMaker, I am passionate about solving real-world challenges. My expertise lies in algorithm development, and I have a keen interest in robotics and explainable AI. I thrive on working on impactful projects that drive the future of artificial intelligence.

WORK EXPERIENCE

NINANO Company Inc **(Sep 2024 - Nov 2024)**
Head. 2F, 315-11, Hyeoksin-ro, Gimcheon-si, Gyeongsangbuk-do, Republic of Korea.
AI Software Developer Intern

Accomplishments:

- **Developed an Advanced Stereo Vision System:** Built a stereo vision solution using MIDAS and SGBM deep learning algorithms from scratch, enabling obstacle detection within 6 meters and ensuring safe drone operation at a consistent height of 10 meters.
- **Integrated Object Detection and Safety Mechanisms:** Implemented YOLO for real-time object detection and integrated it with the drone's flight controller, enabling autonomous safety braking and operator notifications.
- **Developed Autonomous Recovery System:** Designed an algorithm for transitioning the drone between brake and loiter modes, ensuring seamless mission continuity.
- **Key Technologies:** MIDAS, SGBM, YOLO, Python, PX4 Autopilot, OpenCV, Raspberry Pi

Sub-Project:

Enhanced Gimbal Camera Functionality: Modified YOLO- based object detection algorithms for a drone-mounted gimbal camera to autonomously track a designated target while simultaneously identifying other objects within the frame.
Key Technologies: YOLO (You Only Look Once), Python, Computer Vision, Gimbal Control Systems.

SpaceK **(Dec 2022 - Jan 2023)**
Chungnam National University Start-up Support Center,160 Techno 2-ro, Yuseong- gu, Daejeon, Republic of Korea.

Embedded Systems Intern

Accomplishments:

- Designed and implemented embedded software solutions for satellite communication systems, improving data transmission efficiency by 20% and enhancing control reliability.
- Developed microcontroller-based solutions using Embedded Linux, UART, I2C, and SPI protocols to streamline satellite communication processes.

RESEARCH EXPERIENCE

Research Assistant | MSPI Research Group | (01-2023) – Present

Conducted research in computer vision and deep learning, focusing on real-world AI applications.
Worked on projects related to Machine Fault Diagnosis, applying AI techniques like YOLO, MiDaS, or Explainable AI.
Assisted in writing and reviewing research papers, including one published publication.
Site - https://sites.google.com/view/drjiauddin/research-areas?authuser=0

EDUCATION

Woosong University, South Korea **March 2021 - February 2025**
Bachelor of Science in Artificial Intelligence - 3.83 - 4.5 / 85.11%

Siliguri Government Polytechnic, India **August 2016 - July 2019**
Diploma in Electronics & Instrumentation Engineering - 70%

Kanchrapara Harnett High School **January 2011 - March 2016**
High School - 79%

PROJECTS

- **Object Detection (52-Card Deck):** Built a machine learning model using OpenCV and Python to identify and classify cards from a standard deck in real-time, achieving 98% accuracy.
- **JCFS Assistant Chatbot:** Designed and deployed a department assistant chatbot using Flask and Google NLP API, enabling automated query resolution and reducing administrative workload by 50%. Integrated sentiment analysis to prioritize student issues.
- **Car-Parking Occupancy Detection:** Developed a computer vision-based parking occupancy detection system using OpenCV and YOLO, achieving 90% accuracy in real-time monitoring.
- **Boston House Data Visualization:** Designed a Tableau dashboard with AI-driven clustering algorithms to analyze housing trends and predict prices.
- **Facial Expression Recognition:** Built a deep learning model using TensorFlow and Python, achieving 92% accuracy in detecting human emotions across seven categories.
- **Train and Deploy a Machine Learning Model:** Developed and deployed a scalable machine learning model on AWS SageMaker, reducing model training time by 40%.
- **SeoulSpotlight Website:** Launched an SEO-optimized WIX website showcasing Seoul's cultural attractions, driving over 1,000 monthly visits.

SKILLS & EXPERTISE

Languages: Python, SQL, Flask
Frameworks & Libraries: TensorFlow, PyTorch, scikit-learn, OpenCV, Keras, CUDA
Specialized Tools: Roboflow, Google NLP API, AWS SageMaker, Raspberry Pi 5, Anaconda, MiniConda, Dialogflow.
Techniques:

- Deep Learning (CNNs, RNNs, Transfer Learning, YOLO for Object Detection)
- Natural Language Processing (Sentiment Analysis, Tokenization, Chatbots)
- Computer Vision (SGBM, MIDAS, Stereo Vision, Image Classification, Object Detection)
- Model Evaluation & Optimization (Cross-validation, Hyperparameter Tuning)
- Clustering & Classification (K-Means, Decision Trees, Random Forests)

Libraries & Tools: Pandas, Numpy, Matplotlib, Seaborn, SPSS, GitHub, Flask, WIX.
Platforms: Tableau, Google Colab, Jupyter Notebooks.
Deployment: AWS SageMaker, Flask APIs.

CERTIFICATIONS

- **Digital Accounting Transformation** – Partnership of Asian Management School
- **Python** – Partnership of Asian Management School
- **Python Programming** – Microsoft, Kolkata (Aug 2019)
- **Android App Development** – IIT Kharagpur (Nov 2019)
- **Data Visualization** – Partnership of Asian Management School
- **UX Design** – Partnership of Asian Management School
- **Elice Game Development in Python** – Korea

PUBLICATIONS

- **Machine Fault Diagnosis Using Sensors Data and Explainable AI Techniques** – Published in Computers, Materials & Continua (CMC)Journal - https://www.techscience.com/cmc/v80n3/57907
- **Advanced Machine Learning Models for Motor Imagery Analysis in Brain-Computer Interfaces** – Expected publication in Springer Nature Scientific Reports (March 2025 - Under Revision)
