Ranjai Baidya

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Ranjai Baidya github.com/rnjbdya
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Experience

AI Researcher 2022/09 - Present
Kpro System *Seoul, South Korea*

- Developed an object detection model for drone-captured images
- Built a vision-based safe autonomous landing system for large drones
- Developed software for Ground Control System (GCS) to control and monitor drones
- Customized Ardupilot firmware and Mission Planner software

Research Assistant 2020/09 - 2022/08
PRML Lab, Gachon University *Seoul, South Korea*

- Developed a multivariate time series forecasting model
- Created a golf ball tracking system using monocular videos
- Performed literature reviews for lab projects and grants

IT Assistant 2019/03 - 2020/09
NIC Asia Bank *Kathmandu, Nepal*

- Managed bank database and generated reports
- Maintained Core Banking System Software and provided support
- Created and maintained scripts for end-of-day processes

Jr. Network and Monitoring Executive 2018/08 - 2019/02
Vianet *Jawalkhel, Nepal*

- Managed and modified ISP network
- Configured routers and switches for deployment
- Monitored network for anomalies to prevent downtime

Education

Master of Engineering, AI Software 2020/07 - 2022/08
Gachon University *Seongnam, South Korea*
GPA: 4.44/4.5
Thesis: Long Sequence Time Series Forecasting Using Spectral ConvMixer Alongside Weak-stationarizing and Non-stationarity Restoring Blocks

Bachelor of Engineering, Electrical and Electronics 2014/07 - 2018/12
Kathmandu University *Kavre, Nepal*
GPA: 3.23/4
Thesis: A Study to Minimize the Effects of Blackhole Attack in Mobile Ad-Hoc Networks

Skills

Programming Languages: Python, C, C++, MATLAB, SQL
Frameworks: PyTorch, Keras, TensorFlow, OpenCV, Scikit-Learn, Dronekit, Pymavlink, NumPy, Pandas, Matplotlib, Cx-Freeze
Tools: Docker, Git, Slack, ROS, Toad, Ardupilot, Mission Planner, QGround Control, Qt Designer
Platforms: Linux, Windows, NVIDIA Jetson, Arduino, Raspberry Pi
Languages: Nepali (Native), English (TOEFL: 109), Korean (Beginner), Hindi (Fluent), Newari (Native)

Projects

Drone Precision Landing System (2022/06 - 2023/05)
Design and implementation of vision-based precision landing system for large drones using Jetson board as companion computer.
Time Series Forecasting (2021/07 - 2022/06)
Development of a multivariate time series forecasting model using deep learning.
Golf Ball Tracking (2020/09 - 2021/06)
Development of a script for trackng golf ball and draw their trajectories using computer vision techniques.
Health and Position Tracker (2016/07 - 2017/06)
Design and implementation a device for monitoring pulse rate and body temperature, with anomaly notifications.

Publications

Baidya, R. and Lee, S. W. (2024), "Addressing the Non-Stationarity and Complexity of Time Series Data for Long-Term Forecasts," Applied Sciences, 14(11), 4436.
Baidya, R. and Jeong, H., "YOLOv5 with ConvMixer Prediction Heads for Precise Object Detection in Drone Imagery," Sensors 22.21 (2022), 8424.
Baidya, R. and Jeong, H., "Anomaly Detection in Time Series Data Using Reversible Instance Normalized Anomaly Transformer," Sensors 23.22 (2023), 9272.

Honors and Awards

- Excellent paper (oral), 2020 Korean Society for Next Generation Computing Spring Conference (2022/05/20)
- Excellent paper (poster), 2021 Korean Society for Next Generation Computing Spring Conference (2021/05/15)

Extracurricular Activities

- Coordinator, Amnesty International Kathmandu University Youth Network (2018/19)
- Vice-Coordinator, Amnesty International Kathmandu University Youth Network (2017/18)
- Head of Editorial Team, Encipher 2018 (Annual Departmental magazine, DoEEE, Kathmandu University)
- Coordinator, Resource Management Team, EEPEX 2018 (Project Exhibition, DoEEE, Kathmandu University)
- Editor, Encipher 2017 (Annual Departmental magazine, DoEEE, Kathmandu University)
- National Player, Nepal Rollball Team (2010-2012), represented Nepal at 1st Asian Rollball Championship and 1st Rollball World Cup