MD ANIS SARKER

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PROFESSIONAL EXPERIENCE

AinoviQ IT Ltd. - Artificial Intelligence Engineer; Dhaka, BD   Feb. 2022 - Present

- Researched and analyzed state-of-the-art algorithms and models for a virtual try-on system, focusing on Generative Adversarial Networks (GANs). Conducted extensive literature review to identify relevant pre-trained models and methodologies.
- Utilized Python along with Scrapy and Selenium to scrape and extract data from various clothing brand websites.
- Developed a PyQt5 application to automate the alignment of naming conventions between models and clothing items for cloth try-on processes, eliminating manual tasks and enhancing workflow efficiency.
- Implemented codes for background removal, human body pose estimation, and extraction of body joints/keypoints coordinates utilizing machine learning algorithms including rembg, segment-anything, densepose, graphonomy, and openpose to prepare tailored datasets.
- Implemented GAN model within a Machine Learning Operations (MLOps) framework. These advanced techniques were implemented using PyTorch and other Python frameworks/libraries, ensuring robust model training, evaluation, and testing processes.
- Deployed the model onto the server using Flask, enabling API services.

CCDS - Research Assistant; Dhaka, BD   Feb. 2020 - Dec. 2021

- Undertook in-field GPS data collection and processing to ensure the accuracy and reliability of collected geo-spatial data for research purposes on slum areas for building categorization project. Cleaned, geo-referenced, processed, and analyzed geo-spatial data, ensuring data integrity and reliability.
- Created a dataset of whole Dhaka city, downloaded, and processed satellite imagery. Oversaw and guided a team of 24-25 students in satellite image segmentation, classification utilizing eCognition software.
- Performed detailed land use and land cover segmentation analysis for Bangladesh, revealing insights into land utilization patterns and environmental changes in diverse category.
- Conducted collaborative research with the University of Tokyo and the United Nations University on urban categorization methods, utilizing deep learning models such as DeeplabV3+ and geospatial analysis techniques through Python, PyTorch, and GIS software like QGIS and ArcGIS. Analyzed factors such as population density, land use patterns, and infrastructure development to classify urban areas into distinct categories, offering valuable insights for urban planning and development strategies.
- Contributed to a project analyzing various disaster images, including landslides, fires, earthquakes, floods, droughts, avalanches, and explosives, and applied deep learning algorithms to identify salient features, mimicking human attention patterns, to support disaster response efforts.

TechDojo - Software Engineer Intern; Dhaka, BD   Oct. 2019 - March. 2020

- Designed and Developed a data model for a document-oriented database to store information in Firebase. Implemented code for an android application called "House Rental" using React Native.

IUB - Research Assistant; Dhaka, BD   July. 2018 - Jan. 2020

- Responsible for sourcing spatial data from satellite imagery providers such as Sentinel-2 and Landsat-8 to support geo-spatial analysis projects.
- Curated datasets, including Gaofen-2 and ISPRS Potsdam, for training machine learning models. Conducted research on GIS studies focusing on classification, and segmentation in diverse category.
- Implemented FCN-8 and VGG-19 models to analyze satellite imagery, achieving a significant improvement in accuracy with a result of 84%. This achievement played a pivotal role in our first publication, demonstrating the practical application of our research findings. Prepared and submitted manuscripts detailing research findings for potential publication in conferences and journals.

TEACHING EXPERIENCE

IUB - Teaching Assistant; Dhaka, BD

- Instructed and guided class of 25-30 students on the courses such as Introduction to Computer Programming, Data Structure, Numerical Method.

PUBLICATIONS

- "Deep-learning framework customized for novel categorization method to classify cities of the developing world", Sensors Journal, MDPI, 2021.
  Ref: https://doi.org/10.3390/s21227469

- "A Novel Disaster Image Data-set and Characteristics Analysis using Attention Model", ICPR, 2021.
  Ref: https://doi.org/10.48550/arXiv.2107.01284

- "Deep-learning coupled with novel categorization method to classify the urban environment of the developing world", International Conference on Signal Processing and Machine Learning, 2021.
  Ref: https://doi.org/10.48550/arXiv.2011.12847

- "LULC Segmentation of RGB Satellite Image Using FCN-8", SLAAI, 2019.
  Ref: https://doi.org/10.48550/arXiv.2008.10736

PROFESSIONAL SKILLS

- **Programming:** Python, C++, Matlab, JavaScript, SQL, Java
- **Framework/Library:** PyTorch, TensorFlow, Opencv, Numpy, Matplotlib, Scikit-learn, Pandas
- **Geospatial Analysis:** Qgis, Arcgis, Google earth engine, Geopandas, Arcpy, Gdal
- **Cloud Computing:** Amazon Web Services(AWS)
- **Web Development:** Flask, FastAPI, Reactjs, HTML, CSS, Tailwindcss, Bootstrap
- **Tools:** Git, Docker, VSCode, Jupyter, Bash, Markdown, Android Studio
- **Scraping Tools:** Scrapy, Selenium
- **Applications:** MLOps, EDA, Image Processing, Data Scraping

EDUCATION

Independent University Bangladesh, Dhaka, BD — Jan. 2015 - Aug. 2019
BS, Computer Science — CGPA: 3.14/4.00
Thesis: Land Use and Land Cover Segmentation Using Deep Neural Network

PROJECTS

KEEPIN; *https://github.com/ansarker/keepin*
Developed a secure web application with user-friend interface using the MERN stack to store and manage sensitive credentials including passwords and financial card information.
Technologies: MongoDB, Express.js, React.js, Node.js

LUV MUSIC; *https://github.com/iub-cse-shq/luvmusic*
A web application enabling seamless music streaming from Dropbox, where users can upload and store their music collection. Integrated the Dropbox API to facilitate the storage of music files.
Technologies: Nodejs, MongoDB

HOUSE RENT; *https://github.com/ansarker/HouseRent*
'House Rent' an Android application facilitating the posting of house rental ads by property owners and enabling users to search for available rental properties.
Technologies: Android Studio, Firebase

LANGUAGE SKILLS

Language	Proficiency Level
Bengali	Mother tongue
English	**IELTS: 6.5;** Listening - B2, Reading - C1, Writing - B2, Speaking - B2

EXTRACURRICULAR ACTIVITIES & INTERESTS

- Playing outdoor sports like football
- Listening music
- Hiking in the mountains and exploring nature
- Reading books on psychology, personal development, or philosophy
- Attending workshops, seminars on topics of interest

REFERENCES

Available on request