KATYANI SINGH

katyani@ualberta.ca 587-938-4297
https://www.linkedin.com/in/katyanisingh/

HIGHLIGHTS OF SKILLS

- Researcher exploring Generative Adversarial Networks (GAN) for Unpaired Unsupervised Image to Image translation.
- 2+ years of research experience in Computer Vision and Deep Learning.
- Advanced technical skills using Python, OpenCV, SciPy, PyTorch and Tensorflow.

EDUCATION

MSc. in Computing Science 2021-Present
University of Alberta, Edmonton AB
Supervisor: Dr.Nilanjan Ray
Overall GPA: (3.7/4.0)

BTech. in Computer Engineering 2016-2020
Mukesh Patel School of Technology Management & Engineering, India
Overall GPA: (3.67/4.00)
Secured Distinction (Rank: 2/180 students)

WORK EXPERIENCE

Graduate Research Assistant May 2021 - Present
University of Alberta, Edmonton AB

- Developing a solution for Unsupervised Unpaired Image to Image translation using GANs, Contrastive Learning and transformer based architectures.
- Exploring methods to achieve SoTA results in unsupervised unpaired image translation task.

Computer Vision Research Intern August 2020 - December 2020
Eigenlytics Data Solutions Pvt. Ltd., India

- Developed an OCR system to extract and recognize text from financial document images.
- Designed the architecture of the model using CRAFT for text detection and ResNet+LSTM+CTC for text recognition.
- Achieved improved results for moderately clean to clean document images.

Junior Data Scientist Intern June 2020 - July 2020
Witsy Ltd., India

- Developed a virtual background feature for video conferencing using Person Segmentation with BodyPix.js library.
- Designed features such as real-time audio subtitling and personalised video filters.

Computer Vision Research Intern April 2019 - February 2020
iPing Data Labs LLP, India

- Developed a novel solution to detect and classify air bubbles on the surface of a thermal insulation material.
- Designed an image preprocessing module for low light and contrast adjustment for noisy camera captured images.
- Achieved improved results on image enhancement and promising results on classification task.

PUBLICATIONS

Image Scene understanding using Bidirectional and Unidirectional LSTM (in progress)

- Proposed design and comparison of two architectures for scene understanding: Unidirectional and Bidirectional LSTM.

A Comprehensive Review of Convolutional Neural Network based Image Enhancement Techniques (ICSCAN 2019)

· A Comprehensive review of various CNN based techniques for image enhancement.

SELECTED ACHIEVEMENTS

Winner at Smart India Hackathon (2019) IIT Roorkee (INR 100,000)

· Developed a platform for autonomous invoice processing using RPA.
· Currently under incubation by the **Department of Science and Technology, Government of India**

PERSONAL PROJECTS

Human Activity Recognition

· Designed a model to classify a person's activities into sets of movements based on the sensor data.
· Combined Logistic Regression with Support Vector Classifier via Gradient Boosting Classifier to achieve an accuracy of **99.67%** on the UCI Human Activity Recognition with Smartphones dataset.

Image Scene Understanding using LSTM

· Designed a model to accurately caption the scene of an image instead of simply detecting the present objects.
· Focused on establishing a relation among the entities such as activity, position or description, and translate it into a semantically correct sentence using NLP.
· Created Web and mobile App for the system with a text to audio module to help visually impaired people.

Air Bubble Detection for Thermal Insulation Stickers

· Developed a Computer Vision based solution for air bubble detection in collaboration with a US based manufacturing firm.
· The solution used RetinaNet trained using Transfer Learning on MSCOCO dataset.

Invoice Processing System using RPA (Smart India Hackathon 2019)

· Developed a platform/software to extract textual information out of forms or invoices autonomously.
· Devised an algorithm that allows to scale down images to a particular fixed resolution.

TECHNICAL STRENGTHS

Programming Languuages	C, C++, Java, Python, SQL
Frameworks	PyTorch, Keras, Tensorflow
Libraries	NumPy, Pandas, SciPy, Scikit-learn, Matplotlib
Utilities	Git, Google Colab, Google Cloud, Microsoft Azure
Operating Systems	Linux, MacOS, MS Windows

ONLINE CERTIFICATIONS

AI for Medical Diagnosis	deeplearning.ai
Image Understanding with Tensorflow on GCP	Google Cloud
Computer Vision Nanodegree Program	Udacity
Applied Machine Learning in Python	University of Michigan
Neural Networks for Machine Learning	University of Toronto
Python for Data Science and AI	IBM
Mathematics for Machine Learning: Linear Algebra	Imperial College London
Mathematics for Machine Learning: PCA	Imperial College London
Mathematics for Machine Learning: Multivariate Calculus	Imperial College London
Computer Vision Basics	University of Buffalo, State University of NY
Computational Vision	University of Colorado Boulder
Neural Networks and Deep Learning	deeplearning.ai