DHEERAJ KUMAR PANT

Second Year Postgraduate • Computer Science And Engineering
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EDUCATION

I.I.T. KANPUR
M.Tech in Computer Science and Engineering
July 2019 - Present • Kanpur, U.P.
CPI: 8.7 / 10.0

G.B.P.U.A.T PANTNAGAR
B.Tech in Electronics and Communication Engineering
2018 • Pantnagar, Uttarakhand
CGPA: 7.24 / 10.0

COURSEWORK

GRADUATE
- Introduction to Machine Learning
- Malware Analysis & Intrusion Detection
- Machine Translation
- Cyber Security of Critical Infrastructure

ONLINE COURSES

Deep Learning Specialization by deeplearning.ai on Coursera
- Neural Networks & Deep Learning
- Improving Deep Neural Networks: Regularization & Optimization
- Convolutional Neural Networks

TensorFlow Developer by deeplearning.ai on Coursera
- Introduction to TensorFlow for AI, ML, & Deep Learning
- CNNs in TensorFlow
- NLP in TensorFlow

Machine Learning: Clustering & Retrieval by University of Washington on Coursera

SKILLS

PROGRAMMING
Comfortable:
C • C++ • Python
Familiar:
HTML • CSS

LIBRARIES & TOOLS
OpenCV • TensorFlow • Keras
numpy • pandas • scikit-learn • LaTeX

RESEARCH EXPERIENCE

GRAIN QUALITY & QUANTITY ASSESSMENT M.Tech Thesis
Supervisor: Prof. Nisheeth Srivastava Jul'20 - present
Key participant in shape-based quality assessment, working in a team of two. Image processing & machine learning techniques are primarily involved.
- Implemented fast algorithms for extracting major & minor axes of grains in sync with contour detection algorithm for quality assessment.
- Implemented an efficient features extraction algorithm for color-based assessment, particularly for classifying analogous-color pixels data.

COURSE PROJECTS

DECAPTCHA Nov'19
Introduction to Machine Learning
- Retrieved characters from captcha code through dilation & erosion techniques, followed by segmentation & then classification using CSVM.

STATIC & DYNAMIC ANALYSIS OF MALWARE Mar'20
Malware Analysis and Intrusion Detection
- Optimal features set were selected for analysis, which were reduced by correlation filters & PCA. Random Forest were trained for classification.

PASAD (PROCESS-AWARE STEALTHY ATTACK DETECTION) Sep'19
Cyber Security of Critical Infrastructures
- Inferred threshold values from clusters obtained in signal subspace by computing Singular & Eigen Value decomposition of lag vectors.

DIFFUSION MAP & CLUSTERING-BASED DETECTION SYSTEM Nov'19
Cyber Security of Critical Infrastructures
- Anomaly detection system where K-Means clustering is used on top of RBF kernel-based diffusion map, to infer threshold value for attack.

SELF PROJECTS

GENERATE SYNTHETIC IMAGES WITH DCGANS Sep'20
- Used Deep Convolutional Generative Adversarial Networks (DCGAN) with Keras sequential APIs to generate images of fashion items.
- Used DCGAN to transform Gaussian noise to the training distribution.

CLASSIFICATION WITH TRANSFER LEARNING Aug'20
- Used Convolutional Neural Networks architecture with existing pre-trained model MobileNet to classify cat vs dog images.
- Trained model using Transfer learning approach particularly with Inception Network on subset of above dataset, getting similar results.

POSITION OF RESPONSIBILITY

TEACHING ASSISTANT Aug'19-Mar'20
- Teaching Assistant for Introduction to Computing Course(ESC101).
- Mentored students, assisted them in their weekly programming labs.