Divyansh Aggarwal

Final Year | Computer Science and Engineering | IIT Jodhpur
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EDUCATION

Examination	University/Board	Institute	Year	CPI/Percentage
Undergraduate	IIT Jodhpur	IIT Jodhpur	Expected 2019	9.57 / 10 (Dept. Rank 1)
Intermediate/+2	CBSE	Delhi Public School Ghaziabad Vasundhara	2015	96 / 100
Matriculation	CBSE	Delhi Public School Ghaziabad Vasundhara	2013	10 / 10

PUBLICATIONS

LEARNING STYLE COMPATIBILITY FOR FURNITURE
German Conference on Pattern Recognition, 2018
10 Oct 2018 – 12 Oct 2018 | University of Stuttgart, Germany

VGRNET: A VIEW INVARIANT GAIT RECOGNITION NETWORK
IEEE International Conference on Identity, Security and Behaviour Analysis (ISBA), 2018
10 Jan 2018 – 12 Jan 2018 | NTU Singapore

FKQNET : A BIOMETRIC SAMPLE QUALITY ESTIMATION NETWORK USING TRANSFER LEARNING
IEEE International Conference on Image Information Processing (ICIIP), 2017
21 Dec 2017 – 23 Dec 2017 | JUIT Waknaghat, Solan, Himachal Pradesh, India

INTERNSHIP EXPERIENCE

LEARNING STYLE COMPATIBILITY FOR FURNITURE
May 2018 – July 2018 | Guide - Dr. Angela Yao | Rheinische Friedrich-Wilhelms-Universität Bonn, Germany
- Collected the large scale dataset of $90,000$ images of Furniture along with their annotations about color, material etc.
- Achieved state of the art performance on learning stylistic compatibility between these furniture images and constructed visual-text based embedding models which can answer retrieval queries based on both images and text.

VGRNet- A VIEW INVARIANT GAIT RECOGNITION NETWORK
June 2017 – July 2017 | Guide - Dr. Aditya Nigam | IIT Mandi, India
- A two-step hierarchical 3-D Convolutional Neural Network was developed for recognition of gait videos using only the silhouettes of the captured frames.
- State of the art results were obtained on the publicly available CASIA-B dataset which includes 124 subjects and 11 different viewing angles.

FKQNET : A BIOMETRIC SAMPLE QUALITY ESTIMATION NETWORK USING TRANSFER LEARNING
June 2017 – July 2017 | Guide - Dr. Aditya Nigam | IIT Mandi, India
- Developed an end to end network for classifying the quality of Knuckle images based on six quality parameters Reflection, Ratio, Focus, Entropy, Spread and Contrast.
- Used transfer learning on the Resnet model to classify the images into Good, Bad and Average and achieved state of the art results on the publicly available PolyU finger knuckle database

MAJOR AND MINOR FINGER KNUCKLE FUSION USING MULTI-SCALE DEEP PYRAMIDAL APPROACH
June 2017 – July 2017 | Guide - Dr. Aditya Nigam | IIT Mandi, India
- Developed an end-to-end architecture for recognition of major and minor finger knuckle images using a fused version of Autoencoder and deep matching algorithm.
- Illumination variations are handled by performing a gradient transformation on the images learned through an autoencoder and the non-rigid deformation is handled through the deep matching network.

PROJECTS

Transcription of Music Played on Keyboard like Instruments
Jan 2017 – May 2017 | Guide - Dr. Gaurav Harit | IIT Jodhpur , India
- Worked on the detection of the keys pressed on a keyboard using video and image analysis techniques.
- Employed feature extraction and contour extraction algorithms to detect the pressed keys and map them to the corresponding musical notes.

Spoofing and Liveness Detection in Fingerprint and Iris Images using Deep Neural Networks
Sept 2017 – Dec 2017 | Guide - Dr. Aditya Nigam, IIT Mandi , India | Dr. Chiranjoy Chattopadhyay, IIT Jodhpur, India
- Developed an end to end deep convolutional neural network using Keras and Tensorflow to identify and classify spoof fingerprint images and fake iris images.
- Employed transfer learning on the already trained ResNet and DenseNet Models.

Synthesis of Realistic Weather Specific Images
Feb 2018 – Present | Guide - Dr. Chiranjoy Chattopadhyay, IIT Jodhpur , India | IBM Research Labs, Delhi, India
- Constructed a pipeline to convert images taken in the summer season to images of winter season taking into consideration fine level features like clothing etc.
- Employed scene transfer followed by person identification and cloth changing and finally warping back the changed clothes back onto the image.

Hostel Room Allocation Management Software
Jan 2017 – May 2017 | Guide - Dr. Chiranjoy Chattopadhyay | IIT Jodhpur , India
- Worked in a group of 2 to develop a software using Swift to effectively manage the hostel room allocation process.
- Responsible for database management for the software, creation of UML diagrams and SRS document for the required software and writing the code of various pages.

SKILLS

Deep Learning Tools	ML and Image Processing Tools	Programming	Database Systems
• Keras	• OpenCV	• C++	• MySQL
• Tensorflow	• MATLAB	• C	• Oracle
• PyTorch		• Python	

COURSEWORK

Core Computer Science	Mathematics	Additional Courses
• Data Structures and Algorithms	• Probability Statistics and Random Processes	• Deep Learning for Computer Vision
• Algorithm Design and Analysis	• Linear Algebra and Calculus	• Digital Image and Video Processing
• Software Engineering	• Complex Analysis and Differential Equations	
• Object Oriented Analysis and Design		
• Artificial Intelligence		
• Database Systems		
• Machine Learning		
• Pattern Recognition		

AWARDS AND ACHIEVEMENTS

- Received the DAAD WISE scholarship in the year 2018 to pursue research internship in Germany.
- Academic Distinction Award for the Session 2015-2016 and 2016-2017, Computer Science and Engineering, IIT Jodhpur
- Successfully cleared KVPY exam in 2015
- Among the top 300 students to successfully clear the National Standard Examination of Physics (NSEP) 2015
- Secured perfect 10 pointers for 3 consecutive semesters during Sessions 2015-2016 and 2016-2017

POSITIONS OF RESPONSIBILITIES

Assistant Head, Robotics club, IIT Jodhpur
Organizing the activities of the Robotics club of the institute including lectures and competitions.

Assistant Head, Flagship Events, IGNUS-17, IIT Jodhpur
Managing and Organizing the flagship events including Clash of Bands, Group dance and Fashion show in Ignus-17