Shreshth Saini

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EDUCATION

Examination	University/Board	Institute	Year	CPI/Percentage
Undergraduate	IIT Jodhpur	IIT Jodhpur	2020	7.97 / 10
Intermediate/+2	RBSE	M.B. Public School	2015	89.80 / 100
Matriculation	RBSE	Modern Defence School	2013	91.33 / 100

PUBLICATION

PixISegNet: Pixel Level Iris Segmentation Network using Convolutional Encoder-Decoder with Stacked Hourglass Bottleneck
IET Biometrics

INTERNSHIPS AND EMPLOYMENTS

Skin Cancer Analysis
May 2019 – July 2019 | Guide - Dr. Mornin Feng | Saw Swee Hock School of Public Health (SSHPH), NUS | Compiling Work for Publication
- Proposed a new branched segmentation network for challenging skin lesion identification and segmentation task
- Branches emerging from main encoder serves different purpose like localizing the lesion, focusing on lesion boundaries
- Achieved state of the art results on ISIC and Ph2 datasets

Iris segmentation
May 2018 – July 2018 | Guide - Dr. Aditya Nigam | IIT Mandi
- We proposed a new segmentation network for challenging case of non ideal iris whilst capturing the image
- The Network consisted of Stacked Convolutional Neural Network based Encoder-Decoder with an Hourglass Bottleneck
- Achieved state of the art results (jaccard index of 0.92) on publicly available datasets of iris

No Reference Biometric Image Quality Assessment
May 2018 – July 2018 | Guide - Dr. Aditya Nigam | IIT Mandi
- We proposed an end-to-end CNN based architecture for hand based biometric image quality assessment
- The architecture mainly consisted of two parts:(i) Image-Re-constructor and (ii) The Quality Score Regressor
- The proposed Network outperformed the existing methods(Classical Image Processing and Deep Learning)

Ear segmentation
May 2018 – July 2018 | Guide - Dr. Aditya Nigam | IIT Mandi
- An end-to-end architecture to segment the human-Ear was designed in keras
- The architecture was inspired from UNet and was modified intensively and performed well.
- Further work introduces the pix2pix GANs for the segmentation task

PROJECTS

Skin Lesion analysis for Melanoma Detection
Jan 2019 - May 2019 | Guide - Dr. Anil Kumar Tiwari | IIT Jodhpur | Paper Under Review
- Proposed a state of the art segmentation network for classify lesion pixel in demroscopic images
- A two stage architecture first localizes the possible skin lesion and then are fed to the segmentation network
- Segmentation network was pretrained on the cropped dataset prepared from the original masks

Segmentation of the left Atrial Cavity from 3D Gadolinium-Enhanced MRI Data
Aug 2018 - Dec 2018 | Guide - Dr. Anil Kumar Tiwari | IIT Jodhpur

- We propose a 3D architecture for the localization of the 3D data to produce tightly fit 3D volumetric samples
- A modified version of the Faster RCNN based architecture is developed for the localization and producing cubic samples
- The cubes are then fed to a 3D U-Net + Hourglass network for generating 3D masks

Edge-preserving image denoising techniques
Jan 2018 – April 2018 | Guide - Dr. Rajlaxmi Chouhan | IIT Jodhpur , India

- A rigorous study of edge preserving image de-noising techniques was performed
- Several denoising techniques were implemented from scratch in MATLAB
- A comparative study showed that with high computation cost Non-Local-Means(NLM) gives the best results

SKILLS

Deep Learning Tools	ML and Image Processing Tools	Programming
• Keras	• OpenCv	• Python
• Tensorflow	• MATLAB	• C++
• PyTorch		• C

COURSEWORK

Electrical and Data Sciences	Mathematics	Additional Online Courses
• Machine Learning	• Stochastic Calculus	• Machine Learning
• Artificial Intelligence	• Probability Statistics and Random Processes	• Deep Learning for Computer Vision
• Digital Image Analysis	• Linear Algebra and Calculus	• Digital Image and Video Processing
• Introduction to Data Science	• Complex Analysis and Differential Equations	
• Information Theory and Coding		

AWARDS AND ACHIEVEMENTS

- First position in NUS-MIT datathon-2019 in medical imaging track
- Ranked in National Top 1(percent)(amongst 1,300,000 candidates) in JEE Mains 2016 and Top 5(percent)(amongst 200,000 candidates) in IIT-JEE Advanced 2016
- Ranked amongst top 0.05(percent)(amongst 400,000 candidates) in Senior Secondary exams in 2015
- Letter of Appreciation from District Collector (Sirohi) for Academic Excellence | 2013
- State Rank 39th out of 0.8 million in Secondary exams | 2013

POSITION OF RESPONSIBILITIES

Overall Student Head, Entrepreneurship Cell
May 2018 - May 2019 | IIT Jodhpur
Leading, managing and promoting the entrepreneurial activities in the institute, including lectures on finance, stock markets and several internal discussions also organised the IdeaSpark which witnessed the participation from across the state and National personalities as Guests.

Assistant Head, Counselling Services
May 2018 - May 2019 | IIT Jodhpur
Organizing the events and workshops for maintaining positive atmosphere in college and mentoring the student guides.

Volunteer, International Workshop on Deep Learning(IWDL) (IIT Mandi)
May 2018 | IIT Mandi
Prepared the study material and took hands-on session for participants.

Student Guide, Counselling Services
May 2017 - May 2018 | IIT Jodhpur
Counseling Service is a student run body to help the freshers to adjust to the exciting and challenging college life. As a student guide I had the responsibility to personally guide 10 freshers and give them support in their personal, professional and academic life.