Priyank Pathak

Personal Data

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Education

2013-present	Indian Institute of Technology	
	(Double Major) B.Tech Electrical Engineering and Computer Science	CPI: 8.5/10
2013	Sunbeam Bhagwanpur, Varanasi	
	Central Board of Secondary Education	Scored: 93.8 %
2011	St. John's School, DLW, Varanasi	
	Indian Certificate of Secondary Education	Scored: 93.14%

Major Scholastic Achievements

- Received **Academic Excellence Award** for distinctive performance in the term **2013-14** (Scored perfect **10 pointer**), among the top 11 students to get **Double Major in Computer Science**
- Achieved **All India Rank (AIR) 1597** in **IIT JEE'13** out of 1,50,000
- Secured **AIR 3457** in All India Engineering Entrance Exam(**AIEEE**), out of 1.6 million appearing students
- Ranked **AIR 192** in **Kishore Vaigyanik Protsahan Yojana(KVPY)-2012-13**,a National High School Science Exam
- Awarded **Donor scholarship** for distinguished performance in academics, **2014-15 and 2016-17**
- Ranked **104 B.Tech** and **6 B.Tech(Bio-Tech)** in Uttar Pradesh State Entrance Exam 2013

Research Projects

Summer'17
May-July,'17

Rice University, USA

Mentor : Prof. Anshumali Shrivastava
Machine Leraning , Research Intern

- Implementation of Computer Vision methodology VAE for audio signals, to reproduce sound spectrograms frames (fully connected neural network using Fourier Transforms)
- Experimentation by switching enocders of English and French trained encoders, to compare phoneme structure of two languages via t-SNE plots of latent space
- Attended High Performance Computing Workshop for working experience with GPUs

$10^{th} Semester$
Jan'18 - current

IIT KANPUR, India

Mentor : Prof. Harish Karnick
Natural Language Processing, Undergrad Project, Current Semester

- Implementation of Sentence2Vec architecture for summary Evaluation, proposal for a trainable scale function which promises to overcome limitations of Rouge and F1 scores.

$9^{th} Semester$
Aug-Nov,'17

IIT KANPUR, India

Mentor : Prof. Vinay Namboodiri
Computer Vision, Undergraduate Project, (On Hold),

- Modified NYU V2 Dataset, to create a new dataset of binary depth maps(thresold 60) and 3 corresponding blur planes (foreground,midground and background)
- Variant of Pix2Pix Model trained to create defocused image using RGB image and an bnw plane, fed in-parallel, trained in supervised manner using new dataset

$9^{th} Semester$
Aug-Nov,'17

Rice University, USA

Mentor : Prof. Anshumali Shrivastava
Computer Vision, Remote Project, (On Hold)

- Implementation of VAE, AE and GAN for artworks to match the styles to nearest dates, prediction of time line of artwork based on similar works from close associates of artist.
- Verification of theoretical posit for two encoder sharing decoder, if latent space overlap then reduction in mode collapse or non-overlap implying efficient filling of z space.

Winter'14

IIT KANPUR, India
Image Processing , (Inventory Management)

- Prepared case study of Surf technology to mark characteristic points and detection of object using image descriptors
- Designed prototype algorithms for counting the number of object appearing in an image, irrespective of orientation, size, overlapping, worked correctly for 2 objects.

Other Key Academic Projects

- **Microsoft Code.Fun.Do** *(2017)*
  - Vision oriented application of One Millisecond Face Alignment (web cam) to mimic snapchat/facebook face filters (aligned on central point of screen), animating and static features
  - Application of feature points for various applications, eye lids monitor while pdf reading for scrolling down, eye close monitoring for sending computer to sleep and taking snapshots on lips command.
- **Network implementation through Cloud on allocated Virtual Machines**
  - Implemented as a part of course project, a portal responsible for managing lost and found properties, information for local campus audience, UI and webmail service. Use of domestic web mail service to update the Central MySQL database. Database update by sending mail to server
- **NachOS implementation of OS**
  - Implemented system calls to simulate normal OS functionality involving multiprocessing, multithreading (fork and clone), intercommunication, process scheduling and page replacement algorithms.
- **Implementation of verilog functionality through Assembly Language** *(Computer Architecture)*
  - Implemented Quick Sort and other basic codes through assembly language
- **Implementation of Money Split-wise** *(Database)*
  - MYSQL based split wise and verification of non-viable transitive enclosure property for money transfer.
- **Computer Vision**
  - Implementation of Semantic segmentation of images (CVPR paper), slightly modified

Work Experience

Summer'16
May-Jul

Reliance Jio Cloud Computing
Common Services and feature development

- Designed UI for monitoring system logs using Django framework and Angular Js, with all query performance based on MySQL database.
- Prepared Proof of Concept for *eSign*, using government and Adobe implementation for legal binding and studied different implementation prevalent around the world, specifically for generating authentic eSign for one time use and non-replication .
- Coded with Java iText libraries for PDF signing involving multilevel CAs, cryptography, time stamps, CRLS, etc, all requisites for government authenticity
- Developed activity tracker for monitoring all activities on Cloud drive, using python *(Django framework)* and Angular Js, involving self-written APIs
- Prepared case study for Druid Data Analytic. Set up Druid, Pivot and HDFS across different VMs and coordinated them.
- Experimented with sample wikipedia version of Druid for different query matching.

Interests

Computer Vision, Machine Learning, Software engineering (application oriented projects)

Technical Skills

Programming Languages	C, C++, Java, Python (Keras and Tensorflow), Verilog, HTML , MIPS
Other Tools	MATLAB, OpenCV, Photoshop , Premium Pro

Relevant Courses

Computer Vision	Natural Language Processing	Machine Learning	Networks
Operating System	Data Structure (advanced)	Information Theory	Convex Optimization

POSITIONS OF RESPONSIBILITY

- **Student Guide and Academic Mentor, Counseling Service, IIT KANPUR**
  - Mentored 6 freshmen and ensured their smooth induction into the campus, with their personal counseling for the one year.
  - Conducted regular remedial classes for students facing problem in physics Electrodynamics and academic assistance for one to one mentoring to academically deficient and probated students.
- **Electrical Engineering Association, Convener, IIT KANPUR**
  - Managed all extra-curricular activities of Electrical Engineering, and event worth about net budget of 2 lakh rupees with a 3 tier team, in coordination with UGs, PGs and Professors.

Extra Curricular Activities

- **Active Sports person**, play squash and have attended sports camp for the same in summer'14
- **Photography Enthusiast**: Often involved in photographic trips and coverage of events at campus. **Won few of the Campus Photography Competitions** involving competition over 1K entries.
- **Freelance video maker, editor and cinematographer**, producing entertainment videos for campus. YouTube video registered with 10K+ views
- Earlier was a part of Alumni Contact Program with total +90 working hours in a month