Nishant **Rai**

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EDUCATION

April 2017	B.Tech (Computer Science And Engineering)	IIT Kanpur	9.9/10.0
April 2013	Class XII (Central Board for Senior Education)	K.V. Delhi	96.20 %
April 2011	Class X (Central Board for Senior Education)	K.V. Shillong	10.0/10.0

ACADEMIC ACHIEVEMENTS

- Received **Charpak Research Scholarship '15** and **MITACS Globalink Award '16**
- Received the **Academic Excellence Award** for exceptional academic performance in **13-14** and **14-15** academic session
- Received **A*** grade in **12** courses (Awarded for Outstanding Performance in a course)
- Secured AIR - **257** in **JEE (Advanced) 2013** and AIR - **79** in **JEE (Mains) 2013**
- One amongst the **6 INMO Awardees** selected for **IMO training camp**, after clearing **INMO '13**
- Awarded Gold medal for being selected for **IPhO training camp**, after clearing **INPhO '13**
- Selected for the prestigious **KVPY** scholarship, in stream SX
- Secured **Rank 1** in **Regional Mathematics Olympiad '12** (Delhi Region)

PUBLICATIONS

AdaScan: Adaptive Scan Pooling in Deep Convolutional Neural Networks for Human Action Recognition in Videos In Review
Amlan Kar*, Nishant Rai*, Karan Sikka, Gaurav Sharma Nov '16
2017 IEEE Conference on Computer Vision and Pattern Recognition

Bi-Modal Regression for Apparent Trait Analysis Accepted
Nishant Rai Aug '16
ChaLearn Joint Contest on Multimedia Challenges beyond Visual Analysis
23rd International Conference on Pattern Recognition

Partial Multi-View Clustering Using Graph Regularized NMF Accepted
Nishant Rai, Sumit Negi, Santanu Chaudhury, Om Deshmukh Jul '16
23rd International Conference on Pattern Recognition

Evolving structure of the Maritime Trade Network Accepted
Zuzanna Kosowska-Stamirowska, César Ducruet, Nishant Rai May '16
Journal of Shipping and Trade

INTERNSHIPS

C.A.R.I.S. LAB May '16 - Jul '16
University of British Columbia, Vancouver, Canada

> **Single-Arm Reach Prediction:**
> Mentored by Justin Hart, Post Doc, CARIS Lab and Elizabeth Croft, Head, CARIS Lab , for prediction of **single-arm reaching** motion by humans in order to create smooth and safe Human-Robot interactions.

> **Merging Point Clouds from Multiple Kinects:**
> Mentored by Justin Hart, Post Doc, CARIS Lab for **aligning points clouds** being received from **multiple Kinects**.

X.R.C.I Dec '15
Xerox Research Center India, Bangalore, India

> **Multi View Clustering via Non Negative Matrix Factorization:**
> Mentored by Om Deshmukh, Senior Researcher (Area Manager, Multimedia Analytics), XRCI and Sumit Negi, Principal Researcher, XRCI , for developing and evaluating algorithms for Multi View Clustering using Non Negative Matrix factorization.

I.N.R.I.A. May '15 - Jul '15
French Institute for Research in Computer Science, Rocquencourt, France

> **Alternate Paths in Road networks:**
> Mentored by Laurent Viennot, Senior Researcher, INRIA and Adrian Kosowski, Researcher, INRIA , for finding routes substantially different from the shortest path based on different criteria.

> **Feature Based Representation of Social Networks:**
> Mentored by Adrian Kosowski, Researcher, INRIA , finding good local features which are suitable predictors for global features

SELECTED PROJECTS

ADAPTIVE SCAN POOLING FOR HUMAN ACTION RECOGNITION: Aug '16 - Current
- Project aimed at **Human Action Recognition** through Deep CNNs by proposing a novel method for **temporally pooling** video frames.
- Our approach learns to **pool discriminative** and **informative** frames in a **single temporal scan** of the video.

VISUAL STORY TELLING: Aug '16 - Nov '16
- Project involves mapping **sequential images** to sequential, human like, narrative descriptive sentences or **stories**.
- Involved implementing an attention based model and baselines for the recently released **Visual Storytelling** task.

CHALEARN: APPARENT PERSONALITY ANALYSIS THROUGH VIDEOS: Jun '16 - Jul '16
- Project for challenge hosted for **ChaLearn Looking at People, ECCV '16 workshop**. Secured 6th place amongst **85** teams.
- Experimented with multiple **audio** and **visual** feature based models including **Background-Context** and **Facial feature** models.
- Multiple approaches used for combining **frame-wise predictions**. Results post fusion **much better** than models using single modality.

DEEP LEARNING FOR VISUAL QUESTION ANSWERING: Mar '16 - Apr '16
- Project aimed at constructing Neural Network-based models for **Answering Open-ended questions** about images.
- **Multiple methods** used for combining the visual and audio features, and their effect on the performance was studied. The entire network (except the CNN for image features) is trained **End-to-End**.

REAL-TIME VEHICLE AND LICENSE PLATE RECOGNITION: Feb '16 - Apr '16
- Project aimed at **Real-time vehicle Recognition** along with **Extracting Registration Numbers** from **License Plates**.
- Proposed method involves processing the video frames to extract **candidate regions** containing vehicles.
- License plate **localized** after processing the candidate region. **OpenALPR** used to further narrow and extract the Vehicle number.

OTHER PROJECTS

INFINITE PRISONER'S DILEMMA:	Proposed and implemented RL based Adaptive strategies for IPD
ADA COMPILER:	End-to-End Compiler for a subset of ADA in the x86 Architecture
COMPUTER NETWORKS:	Implemented a basic HTTP server, Proxy server, STCP layer and Router
MULTI-SENSE WORD EMBEDDINGS:	Unsupervised computation of Multi-Sense Embeddings
NACHOS OPERATING SYSTEM:	Extend the NachOS operating system
MULTI-MODAL EMOTION RECOGNITION:	Emotion detection using Multiple modalities
GEOMETRIC DATA STRUCTURES:	Data Structures to efficiently answer Geometric Queries
SENTIMENT ANALYSIS OF SOCIAL MEDIA:	Interface to analyze social sentiment for brands
MINOR PROJECTS:	Othello Bot, BattleShip Bot, Captcha Decoder, Multi-Label Question Classification Intra-Cluster Distance Minimization, News Report Classification

TECHNICAL SKILLS

Programming Languages (PROFICIENT):	C, C++, PYTHON, MATLAB
Programming Languages (FAMILIAR):	JAVA, CSS, JAVASCRIPT, PHP, GNU OCTAVE
Software and Utilities:	OPENCV, GIT, KINECT SDK, GNUPLOT, VERILOG, LaTeX AUTOCAD INVENTOR

POSITIONS OF RESPONSIBILITY

Jul '16 - Current	Tutor, Introduction to Computing - ESC101A
Jan '15 - Apr '16	Member, Core Team Academics, Counseling Service
Aug '14 - Mar '15	Senior Executive, Public Relations, Techkriti '15, IIT Kanpur
Apr '14 - Apr '15	Secretary, Programming Club
Jun '14 - Apr '15	Academic Mentor (MTH101/102) and Student Guide, Counselling Service

ACHIEVEMENTS IN PROGRAMMING

- Secured 1st place in **Microsoft CodeHunt** amongst individuals from over the country. Selected for **finals** in **China**.
- Secured 13th place in **IOPC** amongst **900+** teams from over the world held during **Techkriti '15**.
- Secured 1st place in the event **Chaos** (Esoteric Programming Contest) held during **Techkriti '15**
- Secured 18th place in in **Morgan Stanley Codeathon 2014** amongst **1000+** individuals from over the country.
- Secured 8th place in **ZS Associates Data Science Challenge** amongst **300+** students from over the country.
- Secured 26th place in **ACM ICPC Onsite Contest** 2014 amongst **250+** teams from over the country.

EXTRA-CURRICULAR ACTIVITIES

Secured 1st place in **Reviews** - Lifestyle event in **Spectrum '14** (Inter-Hostel Competition).
Secured 1st place in **Tennis (Singles)** in **Freshers' Inferno '13** (Inter-Hostel Sports Competition).