

## EDUCATION

**SCHOOL OF CS, GEORGIA TECH** | PH.D. IN COMPUTER SCIENCE - INTERESTED IN MACHINE LEARNING AND OPTIMIZATION  
Aug 2017 - Present | Atlanta, Georgia

**IIT, KANPUR** | B.TECH IN COMPUTER SCIENCE AND ENGINEERING  
Aug 2013- May 2017 | Kanpur, India | **Cumm. Grade Point: 9.7/10**

## INTERNSHIP EXPERIENCE

**STOCHASTIC KERNEL PCA** | RESEARCH INTERN UNDER DR. RAMAN ARORA, JOHNS HOPKINS UNIVERSITY  
May 2016 – Aug 2016 | Baltimore, USA

- Worked on stochastic methods for Kernel PCA by extending Stochastic PCA methods using non linear feature maps.
- Used Randomized Fourier features and deterministic features using Taylor series to approximate the kernel evaluation.

**NIKE, NTC TOUR DUBAI** | NIKE, DUBAI | SOFTWARE DEVELOPMENT INTERN  
May 2015 - June 2015 | Dubai, UAE

- Developed a website for a Nike event, NTC Tour Dubai integrating social tagging in 360 panoramas.
- Facebook Graph API, email addresses, and the Twitter APIs were used to fetch data, perform tagging, and sharing.
- Developed and deployed a ticketing system using Amazon AWS for the same event which was attended by over a 1000 guests.
- Android application and Database servers were set up to check in guests for the event based on the unique QR codes.

**GREEN SCREEN AND FACE RECOGNITION** | BANK MUSCAT, DUBAI | SOFTWARE DEVELOPMENT INTERN  
June 2015 - July 2015 | Dubai, UAE

- Developed an app using Microsoft Kinect implementing background subtraction, gesture recognition, face recognition and detection.
- Designed a multi-screen setup for deploying the app as a marketing and advertisement tool at public places.

## RESEARCH EXPERIENCE

**OPTIMIZING CONCAVE PERFORMANCE MEASURES** | DR. PURUSHOTTAM KAR, IITK  
Jan 2017 – May 2017 | Kanpur, India

- Worked on optimizing concave performance measures in adversarial settings and under delayed feedback.
- Used Online Mirror Descent by formulating a primal-dual problem and obtained sublinear regret bounds.

**NON CONVEX METHODS FOR SURVEILLANCE** | DR. PRATEEK JAIN, MICROSOFT RESEARCH AND DR. PURUSHOTTAM KAR, IITK  
Aug 2016 – December 2016 | Kanpur, India

- Used alternating minimization technique to solve the non-convex Robust PCA objective for background subtraction.
- Extended the Robust PCA for still camera videos to videos with camera motion by devising fast methods for homography estimation.

**AUTOMATIC VIDEO SURVEILLANCE** | DR. H. KARNICK, IITK  
Jan 2016 – April 2016 | Kanpur, India

- Developed methods for entity recognition for traffic surveillance using CCTV footage.
- Implemented Entity recognition using CRFs and RCNN, and face detection and recognition using Viola-Jones and Neural Nets.

**EXTREME MULTICLASS-CLASSIFICATION** | DR. PRATEEK JAIN, MICROSOFT RESEARCH AND DR. PURUSHOTTAM KAR, IITK  
Jan 2016 – July 2016 | Kanpur, India

- Worked on the extreme classification problems where the number of classes, dimensions and (or) training size scales up to millions.
- Extended a local embedding based algorithm for extreme multi labelling problems to extreme multiclass settings.

**SPARSE RECOVERY AND OPTIMIZATION** | DR. PRATEEK JAIN, MICROSOFT RESEARCH AND DR. PURUSHOTTAM KAR, IITK  
Jun 2015 – December 2015 | Kanpur, India

- Worked on the compressive sensing by studying the algorithms in the field: GraDeS, OPMR, Basis Pursuit, CoSAMP, OMP, and Lasso.
- Performed experimental and theoretical analysis to quantify the performances under varying dimensionality, sparsity, and noise.

## SELECT PROJECTS

- **photoCENTER - Image/Video Processing App**: Developed an open-source multi-platform software to edit videos and images including background extraction capabilities using image processing techniques.
- **Artify**: Designed a web app in Django for deep neural style transfer written in Caffe.
- **ColourIT**: Developed a learning algorithm to automatically colour a grayscale image using multiple regressors and deployed it.
- **Research Group Website**: Designed a package to manage a research group's website by implementing self populating project pages, group members, publications, news, and collaborators using MEAN stack.

## SKILLS

### Languages

C++ • C • Python • Matlab  
• Octave • Awk • C# • Bash

### Scientific Libraries

Tensorflow • scikit-learn • Caffe  
• OpenCV • OpenGL • pandas

### General Tools

Git •  $\text{\LaTeX}$  • GNUplot • vim  
• MySQL • MongoDB

### Webdev

Node.js • web.py • PHP  
• Javascript • HTML • CSS

## AWARDS

- **Academic Excellence Award**, IIT Kanpur 14',15',16' (Dean's List)
- Secured **All India Rank 269** in JEE Advanced, India 2013 among the 200 thousand selected candidates.
- Secured **All India Rank 321** in JEE Mains 2013 among 1.65 million candidates.
- Awarded **Chair's fellowship** by The School of CS, Georgia Tech.
- Awarded the **KVPY fellowship 2011** and **NTSE scholarship 2009** by the Govt. of India.
- Cleared the **Mathematics, Informatics, Physics, and Astronomy** Olympiads organised by the Govt. of India.

## TEACHING AND LEADERSHIP

- **Tutor** | **ESC101**, IIT Kanpur (Fall 16, Spring 17): Delivered weekly tutorials, supervised the TAs, set exams and lab sessions.
- **Coordinator** | **Programming Club**, IITK: Organised various programming contests, Hackathons, summer projects, programming workshops and events for the campus community while managing a team of over 15 secretaries.