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EDUCATION

- **University of Illinois at Urbana-Champaign** — Urbana-Champaign, Illinois, USA
  MS, Electrical and Computer Engineering — *Aug. 2013 - Aug 2015*
  CGPA : 3.95/4.0
  - Major: **Electrical and Computer Engineering**;
  - Key Courses: Computer Vision, Convex optimization, Distributed Algorithms, Random Processes, Advanced GNSS systems, Detection and estimation theory.
  - **GRE:** 331/340 (Quantitative: 169/170, Verbal: 162/170, Writing: 4.5/6)
  - **TOEFL:** 113/120 (Reading: 30/30, Listening: 29/30, Speaking: 28/30, Writing: 26/30)

- **Indian Institute of Technology, Madras** — Chennai, India
  Btech, Electrical Engineering — *Aug. 2009 - May 2013*
  CGPA : 9.27/10.0 — Rank : **5/49**
  - Major: **Electrical Engineering**; Minor: **Operations Research**;
  - Key Courses: Probability foundations for signal processing, Computer organization and microprocessors, Speech signal processing, Digital communications, Communication networks, Linear Algebra, Analog and digital signal processing, Digital IC design, Analog IC design, Control Theory, Signals and Systems.

- **Online Courses**
  - Certified Courses: Machine learning (coursera), Algorithmic toolbox (coursera), Data structures (coursera), Neural networks and deep learning (coursera), Improving deep neural networks: hyperparameter tuning, regularization and optimization (coursera)
  - Uncertified courses: Artificial intelligence (edX), Machine learning (nptel), Reinforcement learning (nptel), Computer architecture (coursera), Convex optimization (Stanford cvx)

RESEARCH EXPERIENCE

- **Efficient Deep Learning for Videos** — IIT Madras, Chennai
  Guide: Prof. B. Ravindran and Prof. Anand Raghunathan (Purdue university) — *Jul 2017 - Present*
  - Working on reducing computation and energy when applying deep learning to video applications with specific emphasis on object tracking.
  - Literature survey on single object tracking, multiple object tracking, visual attention mechanism and efficient DNNs (Deep Neural Network).

- **Frequency Assignment in a Battlefield** — CEWiT,IIT Madras, Chennai
  Guide: Dr. Klutto Milleth — *August 2016 - Present*
  - Reformulated the traditional Minimum Interference Frequency Assignment Problem to incorporate the users throughput and SNR requirements.
  - Developed 3 algorithms to solve the reformulated problem.
  - Submitted to ....

- **Direct Position Tracking using the Vector Correlator** — University of Illinois, Urbana-Champaign
  Guide: Prof. Grace Gao — *Aug 2014 - Aug 2015*
  - Proposed a novel direct position tracking loop for GPS using the Unscented Kalman Filter (UKF)
  - Proved that the tracking loop is robust to noise and multipath as compared to traditional scalar tracking
  - Link to the MS thesis: https://www.ideals.illinois.edu/handle/2142/88087

- **Privacy Protection for Location-Based Services** University of Illinois, Urbana-Champaign
  Guide: Prof. Grace Gao *Aug 2013 - Apr 2014*
  - Proposed a scheme for privacy protection in proximity detection services by using partial low-level GPS information.
  - Tested the efficiency of the scheme by using measurements from the IGS network of stations.
  - Performed prototypical testing with a bunch of users in Champaign using an android app.
  - Published and presented at **27th International Technical Meeting of the Satellite Division of the Institute of Navigation, ION GNSS 2014**. Link to the conference paper
  - Published in IEEE Transactions on Aerospace and Electronic Systems. Link to the journal paper
  - Appeared in Inside GNSS September-October 2015 magazine. Link to magazine article
- **Stochastic Geometry for Cellular Networks** IIT Madras, Chennai
  Guide: Dr. Radhakrishna Ganti *Jan 2013 - Apr 2013*
  - Modeled heterogeneous cellular networks using Poisson point processes.
  - Proposed a new load allocation scheme for better performance in terms of average rate.
  - Analysis of performance metrics of cellular networks such as the SINR and rate using techniques from stochastic geometry
- **Control Theoretic Analysis of Physiological Systems** IIT Madras, Chennai
  Guide: Dr. Gaurav Raina *Aug 2012 - Apr 2013*
  - Modeled the erythrocyte concentration in blood using the Mackey Glass and Lasota models. The models were analyzed using concepts from control theory and delay differential equations.
  - Ascertained the conditions for stability of erythrocyte concentration of blood in order to understand the onset of disease.
  - Studied the influence of parameter variations on the rate of convergence and the bifurcation points of the system.
- **Object recognition at a road intersection** University of Ulm, Germany
  Guide: Dr. Klaus Dietmayer *Apr 2012 - Aug 2012*
  - Developed a labeling tool with a user interface in MATLAB, that is currently being used by the Ko-FAS team for sensor data fusion and manual labeling.
  - Feature extraction followed by implementation of a pattern classifier using Gaussian mixture models to classify the different vehicles at an intersection.

SCHOLASTIC ACHIEVEMENTS

- Awarded **DAAD-WISE Scholarship 2012** for a summer internship program at the University of Ulm, Germany
- Outstanding merit in Mathematics from Srinivas Ramanujan Academy of Maths Talent awarded in 2008.
- Ranked 294 out of 10 lakh students in the All India Engineering Entrance Examination in 2009.
- Among Top 1% of the students in the Zonal Informatics Olympiad (ZIO) 2009 and was selected for Indian National Informatics Olympiad (INIO) 2009.

PROFESSIONAL EXPERIENCE

- **Center of Excellence in Wireless Technology** Chennai, India
  Research Engineer *Apr 2016 - present*
  - Literature survey and implementation of path loss models for battlefield environments.
  - Frequency planning in a battlefield.
- **Google Inc.** Summer Internship, Mountain View, CA
  Street View *May - Aug 2014*
  - Implemented ambiguity resolution algorithms in Python on GPS carrier phase data obtained from receivers installed on Street View cars to achieve sub-meter accurate positioning.
  - Compared results obtained from NovAtels Inertial Explorer with those obtained from the Python framework.

- **TVS Electronics** Summer Internship, Chennai, India
  Research and development *May - Aug 2011*
  - Design, development, debugging and deployment of a Printer utility software for POS printers using Visual Basic 2010.
  - Logo utility software that implements image dithering and compression before sending the image data to the printer in the appropriate format
- **Teaching Assistantship - ECE 456** University of Illinois
  Dept. of Electrical and Computer Engineering *Jan - May 2014, Aug - Dec 2014*
  - Organized lab sessions, generated homework solutions and graded lab reports and homeworks for ECE 456 - Introduction to GPS.
- **Teaching Assistantship - ECE 210** University of Illinois
  Dept. of Electrical and Computer Engineering *Jan - May 2015*
  - Organized lab sessions, generated homework solutions and graded lab reports for ECE 210 -Analog Signal Processing.

PROJECTS

- **Academic Projects**
  - **Human emotion statistics system using facial expressions**, *Mar - Apr 2015*
    Compared 4 types of features - Gabor filter bank outputs, HOG filter bank outputs, Eigenvectors of the face and Active Appearance Model (AAM) features to perform facial expression classification in real time.
  - **The Dining Philosophers Problem**, *Nov - Dec 2014*
    Survey paper on different algorithms for the dining philosophers problem as part of ECE 526 - Distributed Algorithms.
  - **Language Identification in Telephonic speech**, *Nov - Dec 2012*
    Identification of 3 languages (Tamil, Mandarin and Mexican Spanish) of telephonic speech using Gaussian Mixture models and Tokenization procedures.
  - **Design and simulation of Fully differential operational amplifiers**, *Mar- Apr 2012*
    Fully differential two stage operational amplifier circuit design to meet the given specifications for gain, closed loop bandwidth, slew rate and phase margin.
- **Hobby Projects**
  - **Hutchh human following robot**, *May - August 2010*
    Team leader of a 5 member team which successfully made a human following robot. The robot was displayed during Shaastra (IIT Madras technical festival) 2010. Built circuits to operate ultrasonic sensors which were used for the task of human-following

PROGRAMMING SKILLS

- C/C++ - Python - Matlab - Tensorflow - Caffe

EXTRA-CURRICULAR ACTIVITIES

- **Android application development**
  - Part of 4 member teams which developed mobile applications (J2ME and Android) giving detailed information for the institute technical and cultural festivals.
- **Tennis**, IIT Madras
  - Member of the Institute tennis team and Captain of the hostel tennis team from 2010-2012.
  - Member of the bronze medal winning Institute tennis team in Sportsfest 2012.
  - Member of the gold medal winning hostel tennis team in the inter-hostel tennis tournament 2012.