V.ADITYA

Department Of Electrical Engineering

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Academic Qualifications:

Institution	Course	Period	Percentage/CGPA
Indian Institute Of Technology, Kanpur	B.Tech, Electrical Engineering, Final Year Undergraduate	2007-present	10/10 (Major) 9.2/10
FIITJEE Junior College, Hyderabad	A.P Intermediate State Board	2006-07	94.9%
Bharatiya Vidya Bhavan's, Hyderabad	CBSE- Class 10th	2004-05	91.6%

Scholastic Achievements:

- Secured **All India Rank 171** in All India Engineering Entrance Examination 2007 given by more than 0.8 million students and is being awarded with scholarship for outstanding performance in the same.
- Awarded the **"Academic Excellence Award"** by IIT Kanpur for the Academic year 2008-09.
- Cleared Indian Institute of Technology (**IIT**) Joint Entrance Examination (**JEE**) 2007 with 99.9 percentile (**All India Rank 166**) which is taken by about 0.2 million students in India.
- Shortlisted to participate in the **INMO** (Indian National Mathematics Olympiad) representing my state.
- Shortlisted by **INFOSYS** for a 2 week training programme called **"Catch Them Young"**
- Participated in the first **ICARUS-"Indian Conference on Academic Research in Undergraduate Studies"**
- Won the second prize in **"Electromarket"** at **Techkriti '10**, the technical festival of **IIT Kanpur**

Conferences:

- Aditya Vempaty, Keshav Agrawal, Hao Chen and Pramod K. Varshney, **"Adaptive Learning of Byzantines' Behavior in Cooperative Spectrum Sensing"**, Accepted and to be presented in **IEEE WCNC (Wireless Communications & Networking Conference)** in Mexico, March 2011

Key Projects Undertaken:

1. **Adaptive Learning of Byzantines' Behavior in Cooperative Spectrum Sensing:**
   Supervisor: Dr. Pramod K. Varshney & Dr. Hao Chen
   Period: May-July 2010
   - The problem of byzantine attacks on **Cooperative Spectrum Sensing** in **Cognitive Radio Networks** has been analyzed.
   - A technique to learn about the potential malicious behaviour of Cognitive Radios over time has been proposed which helps in identifying the byzantines.
   - Their probabilities of detection and false alarm have also been estimated.
2. **Target Localization In Sensor Network With Quantized Data In The Presence Of Byzantine Attack:**
   Supervisor: Dr. Pramod K. Varshney & Dr. Hao Chen
   Period: May-July 2010
   - The effect of malicious sensors on binary quantized **Localization** problem in **Wireless Sensor Networks** has been considered.
   - The fraction of byzantine attackers which will make fusion centre incapable of finding the location of the target has been found.
   - Posterior Cramer-Rao lower Bound (PCRLB) metric and Fisher information matrix (FIM) have been used to analyse the performance of the network.
   - Optimal attacking strategy for given attacking resources has been proposed.

3. **Distance Estimation using Hop-Count:**
   Supervisor: Dr. Ajit K. Chaturvedi
   Period: July 2010- present
   - The problem of distance estimation using hop-count has been analyzed.
   - A new approach was proposed to determine the distance of a sensor using its hop-count and also its neighbours'
   - The proposed scheme has been shown to be better than the other proposed schemes when they are reliable

4. **DOA Estimation of Speech Signal using an Equilateral Triangle Model:**
   Supervisor: Dr. Rajesh Hegde
   Period: February-April 2010
   - Successful implementation of a process of DOA (Direction of Arrival) estimation of a speech signal by placing microphones at three corners of an equilateral triangle
   - Frequency-array data for the microphones was integrated to estimate the DOA
   - MATLAB has been used for the simulation purposes

Relevant Theory Courses Done:

- Mathematics: Real and Complex Analysis, Vector Algebra, Differential Calculus, Probability and Statistics, Mathematical Methods: Calculus of variation, Perturbation Theory
- Physics: Mechanics, Electromagnetism

Signals and Systems	Digital Signal Processing
Principles Of Communication	Mathematical Methods In Signal Processing
Statistical Signal Processing	Communication Systems
Speech Signal Processing	Wavelet transforms in Image and Signal Processing
Information and Coding Theory	Control System Analysis
Microelectronics	Digital Electronics
Electromagnetic Theory	Power Systems

Practical and Laboratory Courses Done:

- Electronic Circuit lab
- Control System lab
- Introduction to Manufacturing Process
- Electro Mechanical Energy Conversion labs
- Digital Circuit and Microprocessor

Computer Knowledge:

- **O/S** Windows 98/2K, Vista, 7
- **Packages** Java, MS-Office 2007, MATLAB, LabVIEW, LaTeX
- **Simulation Software** Microcap, AimSpice, Verilog/VHDL

Extracurricular Activities, Awards and Participations:

- **Positions of Responsibility**

Position	Organization	Period	Key Achievements
Secretary	Electrical Engineering Association	August '08-May '10	Released the first newsletter
Student Counsellor/Link Student	Counselling Service	August '09-May '10	Successfully monitored performance of 2 students having serious academic problems
Secretary	Dramatic Events, Antaragni '08	October '08	Organized and conducted the Dramatic events in Antaragni'08

- Won 30th rank in **All India Open Rubik's Cube Competition** conducted by **World Cube Association**
- Received the **"Britannia Champs Trophy"** for excellence in academics.
- Received the **"Best Character award"**
- Awarded the best project for working model of **"ROTATING GIANT WHEEL"** made as a part of the course-"Introduction to Manufacturing Processes".