Arpan Gupta

Career Objective

To work on technically challenging real-world problems with my full potential, and develop efficient and cost-effective solutions.

Education

2014– **Doctor of Philosophy (Thesis Submitted)**, *The LNM Institute of Information Technology*, Jaipur, India, *CPI – 10.0* *Supervisor(s):* **Dr. Sakthi Balan** & **Prof. R. P. Gorthi**.
Computer Science and Engineering

2012–2014 **Master of Technology**, *The LNM Institute of Information Technology*, Jaipur, India, *CPI – 9.43* *Supervisor:* **Prof. R. P. Gorthi**.
Computer Science and Engineering

2007–2011 **Bachelor of Technology**, *SRMCEM (affiliated to Gautam Buddh Technical University)*, Lucknow, India, *Percentage – 71.72%*.
Information Technology

2007 **Higher Secondary Certificate**, *Indian School Certificate (ISC)*, La Martiniere College, Lucknow, India, *Percentage – 88.83%*.

2005 **Secondary School Certificate**, *Indian Certificate of Secondary Education (ICSE)*, La Martiniere College, Lucknow, India, *Percentage – 90.67%*.

Research Interest

- Video Activity Recognition, Deep Neural Networks, Computer Vision.
- Parallel Computing, Cryptography, Embedded Systems.

Research Publications

Conference *"Cricket Stroke Recognition using Hard and Soft Assignment based Bag of Visual Words"* in **CVIP 2020** held at IIIT Allahabad in December, 2020.

Journal *"Viewpoint constrained and unconstrained Cricket stroke localization from untrimmed videos"* in **Image and Vision Computing** (Volume 100), August 2020. ISSN 0262-8856 **Link**

Conference *"Discovering Cricket Stroke Classes in Trimmed Telecast Videos"* in **CVIP 2019** held at MNIT Jaipur in September, 2019.

Conference *"Temporal Cricket Stroke Localization from Untrimmed Highlight Videos"* in **ICVGIP 2018** held at IIIT Hyderabad in December, 2018.

Conference *"Action Recognition from Optical Flow Visualizations"* in **CVIP-WM 2017** held at IIT Roorkee(GNEC) in September, 2017.

Conference Presented a paper titled "Song Prediction using Apache Spark" in **ICACCI-2016**, held at LNMIIT, Jaipur in September, 2016. Published in Proceedings of IEEE.

Workshop	Presented a paper titled "A Study of Optimization Techniques for the Implementation of SHA-3 Hash Function (KECCAK) on Hardware Platforms" in **ETIT-2014**, held at LNMIIT, Jaipur in Feb, 2014.

Doctoral Project

Title	*Activity Recognition in Cricket Telecast Videos*
Supervisor	Dr. Sakthi Balan
Co-supervisor	Prof. Ravi Prakash Gorthi
Description	The aim of our project is to build a pipeline for detection of Cricket strokes. We annotated a Highlights video dataset and a Generic video dataset (having 1.73M frames) with Cricket stroke locations for the task of temporal localization. Furthermore, we perform supervised and unsupervised analysis of spatial, motion and CNN extracted features. Currently, we are working on global frame-level and local pose based features for recognition of strokes.

Master's Thesis

Title	*Implementation of SHA-3 (KECCAK) on ARM Cortex M4F Microcontroller*
Supervisor	Prof. Ravi Prakash Gorthi
Description	The thesis work explores the SHA-3 (KECCAK) hash function implementation on ARM Cortex M4F micro-controller (TM4C123GXL LaunchPad), describes the performance trade-offs based on optimization techniques and interfaces it with a Java based UI for generation of digital signatures.

Teaching Assistance (since 2012)

○ Performed Teaching and Lab assistantship in following courses: Computer Programming, Object Oriented Programming in Java, Data Structures and Algorithms(DSA), Advanced DSA, Android Programming, Software Engineering, Introduction to Artificial Intelligence.
○ Guided 15 students in their B.Tech. Projects.

Major Projects

Challenge	Participated in **ActivityNet Challenge 2017** and made submissions for the tasks of Untrimmed Video Classification, Action Proposals, and Action Localization. Code *link*. Report *link*.
Challenge	Our team stood second in the **Xerox Research Mortality Prediction Challenge** conducted at Hackerrank in Oct, 2015. Our team was invited to attend a workshop and participate in the second round of the competition at Xerox Research Center India. Only the top 10 teams were invited.
Internship and Project	Worked on the project of Mortality Prediction at Xerox Research Centre, India on real-world patient data. The duration of the internship was 15 days.
Project	Worked on the **Implementation of SHA-3 (Keccak) hash function and study of its optimization techniques** for reconfigurable hardware platforms (FPGAs) and ARM Cortex M4F micro-controller. For reconfigurable hardware, the Spartan6 family of FPGA kit is used, with coding done in VHDL using Xilinx ISE tool, and for the ARM Cortex M4F, TI's Tiva C Series TM4C123GXL Launchpad Evaluation kit has been used, with coding in embedded C using Keil μVision. Code.

Project	Worked on the project of **Intranet Search Engine (Loogle)**, as the final year project for the completion of the Bachelor's degree. It consisted of two modules, namely, Intranet File Search and Intranet Web Search. The Intranet File Search enabled the user to search any file over the Local Area Network without the need of knowing the IP addresses of systems or having to manually search the shared documents of the systems over the network. The Intranet Web Search enabled the user to search any web page hosted on the intranet. *github.com/arpane4c5/Loogle*. **Technologies Used**: J2EE using Struts, Tiles, Apache Lucene, jcifs. **Front End**: NetbeansIDE. **Back End**: MySQL.
Project	Developed a website on **Online National Polling** for the IBM's The Great Mind Challenge, 2009. Online National Polling was the effort to bring together the voters, candidates, election commission officers and the field officers, to a single platform where they could interact and the voters could vote from any part of the country. It was devised to work in conjunction with the ongoing current manual voting system. **Technologies Used**: J2EE. **Front End**: Rational Application Developer (RAD). **Back End**: DB2.

Training / Minor Projects

Workshop	Attended two day workshop on Deep Learning and parallel architectures by NVIDIA at MNIT Jaipur in Oct, 2017.
Project	Helped the IT department in setting up institute's GPU server (having dual Quadro K4200) by installing major deep learning packages and computer vision dependencies from source, like Caffe, Tensorflow, PyTorch, OpenCV etc.
Project	Developed a 7 note piano based on TM4C123GXL LaunchPad as an extension of EDX course project (2014).
Summer Training	Pursued project based summer training in Networking, Ethical Hacking and J2EE development in 2010 and 2009, respectively.
Projects	Worked on Java Media Player and Animal Husbandry Management System in third year of B.Tech. Libraries: JMF, JSP, Struts.

Technical skills

Programming Languages	Python, JAVA, C, R
Web/Mobile Technology	J2EE, Android
Databases	MySQL
Tools	PyTorch, OpenCV, Caffe, NetbeansIDE, Eclipse, IBMBluemix, RAD, Keil uVision, LaTeX
Micro controllers	ARM Cortex M4F, MSP430

Achievements/Extra Curricular

Academic

- Volunteered in organizing ISEC 2017 at LNMIIT, Jaipur. Link
- Qualified Graduate Aptitude Test in Engineering (GATE) four times from 2011 to 2014, and got the All India Rank of 2526 in 2014.

- Successfully completed the following online courses: "Embedded Systems: Shape the world" (for ARM Cortex M4 programming using Keil), Cryptography 1, Data Science Specialization, Introduction to Big Data with Apache Spark, Convolutional Neural Networks (CS231n).
- Certification: Cleared EMC^2 Information Storage and Maintenance exam (E20-001). Candidate ID: EMC266721, Registration No: 238769124 and Validation No: 120866781.
- Was awarded the certificate of appreciation for working on the project of Online National Polling for the IBM's The Great Mind Challenge, 2009.

Sports

- Currently, hold the FIDE rating of 1622 in chess. Link.
- Represented UP State in National Junior Chess Championship, 2004 at Chennai and National Sub-Junior Chess Championship, 2005 at Kozhikode.
- 1st Runner up in UP State U-19 Chess Championship, 2004 and 2005.
- Won numerous awards at the inter-school, inter-collegiate, district and state chess championships, and participated in national level chess tournaments.

Interests

- Chess, Badminton, Reading

Declaration

I, hereby, declare that all the information furnished above, is true to the best of my knowledge.

Arpan Gupta