POS Tagging using Seq-Seq LSTMs posing it as SMT task, Monsoon'16

Implemented a sequence to sequence system for POS Tagging by modeling it as a statistical machine translation task, aimed at capturing dependencies from all over the entire sentence, instead of a specific window of words. It failed to beat standard tagging methods.

Structured Tensors for Large Scale SBIR, Monsoon'15

Implemented a Sketch based Image Retrieval (SBIR) system using Structure Tensors & Sketch Tokens. This allows fast online addition of new images to the database and efficient querying them by new and old Sketches.

NLIDB System for processing Natural Language Queries, IASNLP Summer School '15

Developed a simple baseline Natural Language Interface to Database (NLIDB) system to convert a Natural Language (NL) query into a Structured Query Language (SQL) and then use the SQL query to retrieve information from databases.

Programming Projects, 2015-Present

- Implemented a distributed banking sytem, and cryptographic protocols using Diffie-Hellman Key Exchange Protocol using Java RMI.
- Implemented various parallel algorithms like sorting, computing MSTs and the games like Game of Life in MPI.
- Implemented a compiler for a subset of the C language using Flex and Bison for parsing, followed by generating ASTs and conversion to LLVM intermediate representations.
- Implemented graph and string processing algorithms along Data Structures like Seg-Trees, AVL-trees, Hash-Maps for Data Structure and Algorithms courses.
- Developed a mobile app security framework with a pipeline consisting of automatic decompilation from .apk to .java code, with static and dynamic code flow analysis along with various signature detection algorithms.
- Developed a bash shell in C++.

Past Achievements and Awards,

- Dean's Merit List holder for outstanding performance in Academics.
- Dean's Undergraduate Research Award holder for outstanding publications.
- Best intern poster awardee, IBM-Research for research performed during internship.
- Selected among the top 40 in India for International Chemistry Olympiad Training Camp (IChOTC)
- Selected in KVPY programme by Indian Institute of Sciences (IISc) in top 100 in India

Workshops, Conferences and Schools Attended, 2015-2018

- Attended NeurIPS 2018 in Montreal, Canada to get more exposure to current research problems before PhD applications.
- Presented my work on Deep Expander Networks in an oral session at ECCV 2018 in Munich,Germany
- Presented my two works on Binary Networks in oral sessions at WACV 2018 in Lake Tahoe, CA/NV, USA and in R&D Showcase, IIIT-H
- Presented my Subword-LSTM work in a poster session at COLING 2016 in Osaka, Japan and in R&D Showcase, IIIT-H
- Completed the 1-week Undergraduate Summer School on Computer Science CSA, IISc Banglore (CSAUSS 2016)
- Presented my work in a talk on *Learning Clustered subspaces for SBIR* at ACPR 2015 in Kuala Lumpur, Malaysia and at the annual R&D showcase in IIIT-H- 2015
- Completed the 2-week IIIT-H Advanced Summer School on NLP (IASNLP-2015)