Eti Chaudhary

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Education

IIT Hyderabad

M.Tech. (Research Assistant) Computer Science — *Aug. 2017 - Present*

- CGPA (Aug. 2017 - Dec. 2019) : 9.68

IP College, Delhi University

B.Tech. Computer Science — *Aug. 2013 - June 2017*

- Overall Percentage: 92.15%
- Bagged 1st position for aggregate 4 years.

HansRaj Model School, New Delhi

Class 12 CBSE Board — *2013*

- Percentage: 95%

Projects Undertaken

Verification of GoLang Concurrency Constructs

Jan. 2019 - Present

- Verification of Go Programs, specifically, Go's concurrency constructs
- Front-End: Updating a pre-existing tool (written in Go) to add support for concurrency constructs. Converts Go into CPROVER IR.
- Back-End: Embedding CPROVER with a SAT encoding that allows verification of converted Go Programs.

Pinaka - A Symbolic Execution Engine

Jan. 2018 - Present

- Pinaka is a path-based eager symbolic execution engine written in C++ which is aimed to be efficient in verifying code that is converted from Verilog to C.
- Pinaka particated at a worldwide platform *SVCOMP 2019*, and bagged 2^{nd} position in *ReachSafety-Floats* sub-category.
- Published a conference paper in *TACAS 2019*.
- Solely responsible for re-structuring of the entire code-base making use of software design patterns such as template class etc.
- Implementation of Breadth First Search in 2 separate modes, that required application of the latest STL features such as unique pointers, move semantics etc.
- Documented the entire code-base using Doxygen.
- Integrated Circle CI tool & involved in testing the tool on benchmarks making extensive use of shell scripts.

Fact Checking in CQA Forums

Aug. 2018 - Dec. 2018

- Used different classifiers in the existing model proposed in previous work
- Extended the basic classification task to rank the factually true answers according to their relevance using SVM-Rank.
- Proposed and tested a new set of features which have not been used in the original work.

Abstract Interpreter on Interval Domain

Jan. 2018 - Aug. 2018

- Implemented a user-interactive abstract interpreter that worked with GOTO IR of the CPROVER Framework.
- The interpreter worked for all the basic arithmetic operations, i.e. addition, subtraction, multiplication and division, with handling of positive and negative infinities.
- Threshold Widening was also applied based on user-entered thresholds.

Image Encryption using Randomized Iterative Scrambling & Per-Pixel Single Bit Inversion

May 2017 - July 2017

- Undertook a 3 month internship at SAG,DRDO.
- Solely responsible the design and development of an Image Encryption Scheme coded in MATLAB.
- The proposed scheme was tested across multiple evaluation metrics such as, histogram analysis, NPCR, UACI, Correlation etc. The scheme was deemed a consistently good performer for higher iterations.

Ease Your Way : A Departmental Store Check-Out App

Jan. 2017 - May 2017

- Ease Your Way was an end-to-end Android App that implemented a self-help checkout system aimed to ease the process of manual checkouts.
- The front-end of the App was designed in Android Studio that ranged from the basic designing to QR Code Scanning.
- Product and User databases were maintained using MySQL and SQLyog.
- The server-side of the application was implemented using WebServlets in NetBeans IDE, that involved keeping track of purchase histories, retrieval of User Cart data etc.

Relevant Activities & Achievements

- Volunteered in organization of SAT-SMT School 2018 (IIIT Hyderabad) and Formal Methods Meet 2019 (IIT Hyderabad).
- Attended Formal Methods Update Meeting, 2018 held at BITS Goa.
- Attended SAT-SMT School, 2017 held at Infosys Campus Mysore.
- Organized a bake sale to donate money at Saraswati Bal Mandir (Paschim Vihar).
- Managed the premises as a part of the Discipline Committee in a National Seminar focused on Frontiers of Computational Research held at IP College, Delhi University, 2015
- Headed a team for designing the placement brochure of Computer Science Department, Indraprastha College
- Have created more than 60 designs ranging across a number of products for Anvi Print Works till date.
- Designed a brochure for Earthwatch, Bengaluru
- Recipient of honour during every year of school life – Awarded to students who score above 90%.

Technical Skills

Programming Languages & Frameworks

C++, C, Python, GoLang, LLVM+Clang, CPROVER Framework