

Soundarya Ramesh

Contact

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Address # 69, Bala Ganesh, Malleswaram, Bangalore, India

Education

2014–Present **Bachelors in Information Technology**, *National Institute of Technology Karnataka, Surathkal*, 8.91 CGPA.
2013–2014 **Pre University Course II**, *Vidya Mandir Independent PU College*, Bangalore, 95.17%.
2011–2012 **Secondary School Leaving Certificate**, *Sri Vidya Mandir Education Society*, Bangalore, 98.08%.

Experience

Internship

May '17 – Present **Domain-agnostic Constraint Synthesis**, *Tsunami Lab*, NATIONAL UNIVERSITY OF SINGAPORE, Singapore.
○ *Project*: Solve the problem of constraint learning between variables to detect vulnerabilities such as buffer overflows in programs.
○ *Field of exposure*: Deep Learning, Security, Software Engineering.

May-Jul '16 **Secure Multi-Party Computation(MPC)**, *Cryptography and Information Security Lab*, INDIAN INSTITUTE OF SCIENCE, Bangalore.
○ *Project*: Worked on getting an efficient protocol for the Graph Consensus Problem in directed graphs. Also implemented an interactive Zero Knowledge Proof system for Graph Isomorphism in C++.
○ *Field of exposure*: Zero Knowledge Proofs, Oblivious Transfer, Secret Sharing.

Course Projects

Mar 2017 **Segmentation of documents into text and musical score.**
Implemented an algorithm based on *Bag of Visual Words* technique for the segmentation of images into text and musical scores, which is a prerequisite for Optical Character Recognition.

Feb 2017 **Smart Doorbell using RPi.**
Developed a smart door bell which notifies the owner about the visitors by recognizing their faces and controls the light bulbs outside the door based on the amount of available natural light.

Nov 2016 **DotParser.**
Implemented a parser for DOT language using JavaCC and Visitor Design Pattern

Oct 2016 **Movie Expert.**
Developed a website which recommends movies to users based on user-user similarity and the users' answers to a set of randomly generated questions.

Oct 2016 **Parallel Computing.**
Implemented a system to find connected components in a dynamic graph using OpenMP.

Sept 2016 **Time Series Analysis.**
Finding the correlation between SHIBOR and stock market returns using DCC-GARCH model in R.

Apr 2016 **Dominator Chain Data Structure.**
Implemented a paper *An Efficient Algorithm for Finding Double- Vertex Dominators in Circuit Graphs* by MAXIM TESLENKO and ELENA DUBROVA which presents efficient representation for double vertex dominators.

Oct-Nov '15 **P2P TCP based File Transfer.**
Implemented a peer to peer GUI based file sharing system using centralized server. The server contains the database of all the files possessed by the peers. Any peer can choose a particular file and receive it from the respective peer.

IEEE Projects

2015-2016 **Daedalus: The unified RSA attacker.**
Implemented a command line tool consisting of attacks on the RSA Cryptosystem.

Mar 2016 **P2MP UDP File Transfer.**
Implemented point to multi-point reliable UDP file transfer using Stop and Wait ARQ scheme and conducted experiments to evaluate the variation in time taken to send all the packets with different maximum segment size(MSS), number of hosts and loss probability.

Coursera courses

2016 **Cryptography I by Dan Boneh.**

Course provided details of the inner workings of existing cryptosystems and analysed the flaws in them.

2015 **Machine Learning by Andrew NG.**

Course provided a broad introduction to machine learning, datamining and statistical pattern recognition.

Skills

Advanced C, Java, Python, OpenMP, Tensorflow.

Intermediate C++, Shell Scripting, R Language, JavaScript, HTML, CSS, MySQL, \LaTeX .

Fellowships and Awards

Dec 2017 Research Forum Award at the *Deep Learning and Security Workshop*, National University of Singapore
May - Jul '16 Indian Academy of Science Fellowship

Roles

Dec 2017 Speaker at the Research Forum, *Deep Learning and Security Workshop*, National University of Singapore
2016 Treasurer, *Computer Society, IEEE NITK Chapter*.
2015-Present Executive Member, *Computer Society, IEEE NITK Chapter*.
Jan-Apr 2015 Teacher of mathematics for high school students, Matrix Institutions, Mangalore.

Hobbies

Present Swimming, Piloxing.

Links

GitHub <https://github.com/soundaryamesh>
LinkedIn <https://www.linkedin.com/in/soundarya-ramesh/>