

Sourya Kakarla

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📁 [ma08.github.io](https://github.com/ma08)

👤 [ma08](#)

[stackoverflow/ma08](https://stackoverflow.com/ma08)

Education

2012–2017 Computer Science and Engineering (Dual Degree), IIT Kharagpur, W.B.

CGPA: 8.64/10(at the end of 9th semester)

2010–2012 Intermediate, Sri Chaitanya Junior College, Hyderabad, Telangana.

Aggregate: 94.7%

2010 Secondary School, V.P.S Public School, Vijayawada, Andhra Pradesh.

CGPA: 10/10

Experience

May,2015 - **Intern**, Microsoft India(R&D) Pvt. Ltd, Hyderabad, Telangana.

July,2015

- Worked on building an Android app.

- Implemented the complete backend on .NET using various services of Microsoft Azure.

- Used Entity Framework to define the schemas and manipulate data.

- Worked on the client side (Android app) to communicate with the server and cache data locally using SQLite.

May,2014 - **Intern**, Advitech Infotech Pvt. Ltd, Hyderabad, Telangana.

July,2014

- Worked on MEAN Stack to develop a social webapp for professionals.

- Primarily worked on the server side using node.js and mongoDB.

- Designed the database schemas on mongoose for mongoDB for the social network.

- Used Express.js for url routing and socket.io for real time updates.

- Implemented a chat server, newsfeed, and email service - was responsible for the backend.

Academic Projects

- Mar'2015-ongoing **Thesis Project - Cryptanalysis of AES and AES based ciphers.**
- Studied and implemented 5-round attack on AES-128 using Impossible Differential cryptanalysis.
 - Extended 5-round attack to AES-256 and a partial attack on 6-round AES-256.
 - Developed and implemented methods to reduce the RAM usage from 4 TB to 176 GB.
 - Proposed and implemented meet-in-the-middle attack on reduced round PAEQ, a 2nd round candidate in the ongoing CAESAR competition for Authenticated Encryption schemes.
- Aug 15 **Normalizing Chat & Identifying Topic of Conversation, *Natural Language Processing*.**
- This project aims to identify the topic of conversation in Social Media, especially Chat.
 - Worked on heuristic algorithms for predicting the topic of conversation.
- 2014 **Compiler for TinyC, *Compilers*.**
- Built a compiler for a variation of C. Github: github.com/ma08/tinyc.
 - Used Flex for lexical analysis and Bison as parser generator to spit out GNU Assembler code.

Projects

- 2015 **ChatterBox.**
- A chat organizing application which makes navigating/accessing chat history easier by indexing and providing various other utilities. Developed by a team of 4.
 - Built a web application using node.js, mongoDB and Angular for GES Hackathon organized by IBM. Secured 2nd place in the hackathon.
 - Built a topic recognition utility over chat using reddit data. Secured winning position in hackathon organized by Flipkart in 2015.
 - Built a Windows Store app for Microsoft's Code.Fun.Do 2014 hackathon. Secured 1st place in the Kharagpur competition. Secured a position in the top 5 (Winners) teams in the final stage of the competition which was conducted nationwide.
 - Built a Chrome extension for facebook chat for Microsoft's Code.Fun.Do 2015 hackathon. Secured 1st place in the Kharagpur competition.
- 2017 **EthPhoto, Opensoft, IIT Kharagpur.**
- Developed a distributed photo sharing application using blockchain technology with no central server. Built using node.js, Embark, Ethereum and IPFS.
 - Team(of 15) secured 3rd place in the competition.
 - Was primarily responsible for the architecture design.
- 2015 **PlotIt, Opensoft, IIT Kharagpur.**
- Team(of 10) secured 4th place in the competition.
 - Developed in python. Used sympy, matplotlib and mayavi for plotting.
 - Was primarily responsible for integrating sympy and mayavi's plotting interface with the GUI built using PyQt - a python wrapper for Qt.
 - Implemented plotting explicit, implicit and parametric equations in 2D and 3D. Inequalities are supported in 2D. The graphs can be exported to various file formats such as png,jpg,pdf etc.
- 2014 **Automated Restoration of Torn Documents, Opensoft, IIT Kharagpur.**
- Team(of 7) secured bronze medal in the competition.
 - Used openCV on Python for image processing.
 - Was primarily responsible for the GUI - implemented using PyQt - a python wrapper for Qt.
 - Implemented drag and drop functionality to upload and remove images, implemented animation effects for loading - using PyQt.
 - Github: github.com/srinivasans/AutoMosaic.

Publications

- Aug 2016 **Stop Clickbait.**
- Developed the chrome extension to identify clickbait articles linked across different websites and set up the server using Flask and nginx on AWS.
 - Won the best student paper award at the conference IEEE/ACM ASONAM 2016.
- Dec 2016 **GAIN.**
- Meet-in-the-middle attack on reduced round PAEQ, an Authenticated Encryption scheme which was a 2nd round candidate for CAESAR competition.
 - Was crucial in designing and implementing the attack. Published in the conference SPACE 2016.

Technical Experience

Have Experience With

languages C, C++, C#, Python, Java, JavaScript, Bash
technologies .NET, node.js, Flask, mongoDB, Microsoft Azure, Amazon AWS, GAS(GNU Assembler), Flex, GNU Bison, Verilog, Angular, OpenMP

Relevant Coursework

Third Sem Algorithms-1, Discrete Structures, Introduction to Electronics, Signals and Systems
Fourth Sem Switching Circuits, Probability and Statistics, Formal Languages and Automata Theory
Fifth Sem Compilers, Computer Organization and Architecture, Algorithms-2
Sixth Sem Operating Systems, Computer Networks, Database Management Systems
Seventh Sem Natural Language Processing, Social Computing, Theory of Computation, Machine Learning, Artificial Intelligence
Eighth Sem Foundations of Cryptography, High Performance Computer Architecture, Computational Geometry
Ninth Sem Cryptography and Network Security, Parallel and Distributed Algorithms, Selected Topics in Algorithms

Activities

- 2013–2017 **Member, Football Team, M.S.Hall, IIT Kharagpur.**
Member of Gold Winning Team, M.S.Hall in the Sports General Championship '14.
- 2013–2017 **Member, Opensoft Team, M.S.Hall, IIT Kharagpur.**
- Captained the team in the academic year 2015-2016.
 - Member of Bronze Winning Team, M.S.Hall in the Tech General Championship '14.
 - Member of Bronze Winning Team, M.S.Hall in the Tech General Championship '17.
- 2012–2013 **Member, KGPIan Game Theory Society, IIT Kharagpur.**
Studied various aspects of Game Theory and its applications.
- Published an article on Burning Bridges in the Football Transfer Market in The Strategist, the magazine of the society.