

# SHIVAM TRIPATHI

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## EDUCATION

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### Indian Institute of Information Technology Una

Bachelor of Technology

Department of Computer Science and Engineering

Overall GPA: 8.58/10

### La Martiniere College, Lucknow

Twelfth grade

Overall percentage: 94%

## TECHNOLOGIES EXPERIENCE

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<b>Computer Languages</b>	C/C++, JavaScript, Python, Java
<b>Frameworks</b>	Nodejs, Reactjs, Flask
<b>Database</b>	PostgreSQL
<b>Software &amp; Tools</b>	Redis, RabbitMQ, Elasticsearch, LaTeX, Git, ROS

## EXPERIENCE

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### Google Summer of Code - MetaBrainz Foundation

May - August 2018

*Postgres, RabbitMQ, Nodejs, Reactjs, Redis, Elasticsearch, Javascript ES6, Knex, Tampermonkey userscripts*  
*Under mentorship of Ben Ockmore*

Worked on developing an infrastructure for importing data from third party sources into the BookBrainz database, so that the community editors can quality check and edit/remove the imported data before adding it into the BookBrainz database. The data import tools involved building a Nodejs command line producer-consumer asynchronous multiprocessing model which pushes to and consumes from RabbitMQ persistent queues, while at the same time ensuring memory constraints are met. Progress is logged into Redis, to help enable pause-resume or handle crashes. Validation of this data revolved around hierarchical storage of imported data within the database, with data progressing through the levels upon getting validated by the users. This required building a user interface aiding the process, as well updating the search to make the results available. Apart from that, I will also be writing userscripts based on Tampermonkey extension which would run on user's browsers so that they can be used to import data from various websites.

### Genetic Algorithm based Clustering

June 2017

*Carried under supervision of Prof. Divya Kumar, NIT Allahabad*

*Artificial Intelligence, C++, NSGA2*

- Designed and implemented a non-dominated sorting algorithm-2 (NSGA-2) based algorithm for solving clustering of data posed as an multi-variate optimization problem to obtain pareto optimal soft-clustering solutions.

### Nissan Renault - IIT Kanpur

May 2016 - July 2016

*Carried under supervision of Professor Laxmidhar Behera*

*C++, Qt, OpenCV, ROS, FOSSCAM*

- Computer Vision aided Driver Assistance System - I worked on a Nissan-Renault funded Computer Vision aided Driver Assistance System (IOV). I initially had to build a proof of concept tool demonstrating that a minimum of four cameras at correct slant angles and heights can give a 360 degree view around a vehicle. This was to be used for grant of funds for next phase of project, which was already under active development. Contributing to an ongoing project, I next worked on integrating feed from multiple FOSSCAM IP Cameras into the existing desktop application running ROS. I also developed an interface to utilize ROS based publisher-subscriber model of data flow which can be used later to develop OpenCV image analysis tools by simply subscribing to the relevant topic (like published camera feed).

### Open Data Kit

February 2017

*Open source contributor, shivam@opendatakit.slack.com*

*Java*

- ODK briefcase : Fixed bugs related to file transfer using SD card, removed media redundancy while exporting CSV files, added progress bars for better user experience.

### GNOME Foundation

June 2016

*Open source contributor, shivamt@chat.gimpnet*

*C/GObject/GTK*

- GNOME photos : Added functionality to extract location metadata from geotagged photographs, push photos to imgur directly using imgur API, revamp UI of empty state window.

## PROJECTS

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### File transfer and Chat Application

*Networking, Sockets Programming, Event driven programming*

Self Project

*Software Engineering*

- A UNIX application in C++ which supports simultaneous data transfers between multiple clients connected to it. It utilizes the event driven architecture along side implementing a multithreaded worker queue model to provide non blocking socket exchange. Being fully event driven and multi-threaded, it can handle more than 10,000 active connections, thereby solving the CK10 problem.

### A GA based time table scheduler

*Command line application*

Major Project

*Node*

- Involved designing and implementing a Genetic Algorithm based time table scheduler with multiple hard constraints like unequal gene size for lab and lecture slots, lunch slot allocation, open electives etc. The algorithm design revolved around creating a multi objective optimization problem and designing fitness functions to so as to aid unequal gene size.

### Loan-It

*Web application*

Hackathon

*Web, Python*

- A first runner-up hackathon project which provides a platform for users to borrow and lend money among peers.
- Flask, SQLAlchemy

### Blog-It

*Web application*

*Python, SQLAlchemy*

- A micro blogging site, enabling users to follow and share content.

## POSITION OF RESPONSIBILITY

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### Computer Science Engineers' Society

*Student Lead, Departmental team for Computer Science and Engineering Department*

August 2014 - present

*NIT Hamirpur*

- Coordinated a team of more than 40 students to organize multiple technical workshops, hackathons and events.

### GNU/Linux User Group

*Student Lead, Volunteer*

August 2014 - present

*NIT Hamirpur*

- One of volunteer team leads for organizing annual Software Freedom Day

### Pixonoids

*Design Head, Photography and Design Team*

August 2014 - present

*NIT Hamirpur*

- Lead designer for NIMBUS (annual technical fest) and Hill'ffair (Annual cultural festival).

### Indian Society for Technical Education

*Technical Head, ISTE students' chapter NIT Hamirpur*

August 2014 - present

*NIT Hamirpur*

- Member of core organizing team for Udbhava - Annual National Convention 2016 and Prodyogiki 2015

### SPIC-MACAY

*Volunteer, Society for promotion of Indian classical music and culture among youth*

November 2014 - present

*NIT Hamirpur*

- Active volunteer

## OTHER LINKS

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codechef : <https://www.codechef.com/users/tripathishivam>

spoj : <http://www.spoj.com/users/shivamt>

github : <https://github.com/shivam-tripathi>

blog : [shivam-tripathi.github.io](http://shivam-tripathi.github.io)