AMAN SHARMA

Email ⋄ GitHub

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EDUCATION

Indian Institute of Technology Roorkee (IITR)   *July 2017 - June 2021*
In Progress
Bachelor in Technology (B.Tech.)
Metallurgical and Materials Engineering

Amity International School, Noida, India   *April 2015 - March 2017*
Senior Secondary
Central Board of Secondary Education (CBSE)

RESEARCH EXPERIENCE

Automatic Minimization of Pull-requests with AST Differencing   *November 2020 - Present*
Supervisors: Dr Martin Monperrus and Mr Simon Larsén
Working on minimising of code diff using AST differencing by keeping only the AST changes. This tool aims to minimise the diff of the changes between the *master* and the target branch. The minimised commit will consist of AST changes without noise and will aim to reflect the intent of the developer so that reviewing becomes easier.

Analysis of work hardening behaviour of light weight alloys   *December 2020 - Present*
Supervisor: Dr Sumeet Mishra
Working on developing scripts which analyse the work hardening behavior of alloys using Voce hardening equation and multiple dislocation density models. Further, code has been written to solve the YLD2000 yield function which will, in future, used to analyse the formability limit of the material.
[**Source Code**]

INTERNSHIP EXPERIENCE

Google Summer of Code 2020   *June 2020 - August 2020*
Accord Project
Worked as a remote intern for Accord Project to develop an **MS Word Add-in** which enabled lawyers to draft **Smart Legal Contracts** directly on the Word document itself. To preserve the grammar (text structure) of the smart contract, I also wrote a parser to convert the CiceroMark (JSON) to OOXML (XML based file to represent Word documents) and vice-versa which automated checking of consistency of the draft with the original contract template.
[**Source Code**]

Iterative.ai   *October 2019 - November 2019*
Data Version Control
Contributed to Data Version Control (DVC) - a command line tool used to **manage and version huge data science projects**. I implemented **dvc version** command from scratch with the corresponding test suites. Apart from this feature, I solved a number of issues to make the user experience smooth and the application robust. In addition to this tool, I also contributed to the documentation of this application by keeping it up to date with the additions in DVC and introducing features to make the documentation more interactive and user-friendly.
[**Source Code**]

Google Summer of Code 2019   *May 2019 - August 2019*
The Vega Project at the University of Washington
Developed a back-end service for **Vega Editor** - a tool which creates data visualizations. This service's purpose is to allow users to publish, store and, share visualizations directly from the editor. Apart from the service, I added many enhancements to the editor to make it feature-rich and robust.
[**Source Code**]

POSITIONS OF RESPONSIBILITY

Google Summer of Code 2021 Mentor   *May 2021 - Present*
Google Summer of Code
I am responsible for mentoring Kushal Kumar on Cicero Word add-in - the same project which I worked on during Google Summer of Code 2020. We collaborate to introduce features for transformations between OOXML and CiceroMark (JSON).

Chief Technical Coordinator   *April 2020 - May 2021*
Information Management Group (IMG)
IMG is a group of students that constantly strive to lead in the innovation, development, and maintenance of advanced information technologies including computer systems, software, and database systems at IITR. As the chief technical co-ordinator, I was responsible for **maintaining the technological infrastructure** of applications and making sure all services are up and running at all times, especially the IITR Website. I also conducted the interviews for selection of a new team and eventually mentored them by **organising regular lectures** and **reviewing their GitHub pull requests**.

Web management committee member   *July 2019 - May 2021*
Institute Web Management Committee, IIT Roorkee
The Institute Web Management Committee (IWMC) decides upon the content and design guidelines of the IITR main website. As its member, I was responsible for coordinating meetings with the members of Department Web Management Committee, the Deputy Director of IITR, and the media team of IITR. I, along with IMG, used to implement the suggestions put forward in the meeting to make the experience smooth for each and every department and centre in the institute.

Web developer   January 2018 - March 2018
Cognizance
Cognizance is the annual technical festival of IIT Roorkee. While working with the web development team for Cognizance 2018, I not only gained expertise in front-end development, but also became adept at setting the right expectations, meeting deadlines, handling multiple stakeholders, and working in synergy with a team.

Member   *August 2017 - April 2018*
National Service Scheme, IIT Roorkee
National Service Scheme (NSS) is a group involved in the social welfare of the society. As an active member of the NSS, I gained expertise in building relationships with various NGOs. Besides, I helped setting up NSS IIT Roorkee's contact with prominent personalities in order to invite them for guest lectures in the college seminars and conferences.

PROJECTS

Content Management System *August 2018 - July 2020*
Information Management Group
CMS is a multi-level role based application that allows specific users in the institute to manage the IITR's official website. It publishes digital content on the website using a WYSIWYG interface Thus, organizing the content on the web page without writing any code.
[**IITR Website**]

Omniport January 2019 - Present
Information Management Group
Collaborated as back-end developer in creating Omniport which is a generic yet customizable platform using which the institutes can deploy their own web portals (like **Channeli** by IMG for IITR), by and for the students. The portal houses a plethora of applications to make the life of the students easier. Some examples of such apps are: Noticeboard - to stay updated about the events in the institute, LecTut - a portal for interaction between students and professors, Placement & Internship - an app through which companies can hire students inside the campus, etc. Apart from these apps, Omniport is flexible enough to accommodate any other app which the institute may need.
[**ChannelI**] [**Omniport Backend**] [**Omniport Frontend**]

IMG Website *December 2018 - February 2019*
Information Management Group
Developed the IMG website which is a portfolio for IMG, IITR which displays information about the IMG members, the blogs they have written, and the projects they have worked on or contributed to.
[**Portfolio**]

COURSES

Mathematics - I [**Syllabus**]

Computer Programming [**Syllabus**]

Mathematics - II [**Syllabus**]

Basic Calculus 1 and 2 [**Syllabus**][**Certificate**]

Design & Analysis of Algorithms [**Syllabus**][**Certificate**]

Discrete Mathematics [**Syllabus**][**Certificate**]

Database Management System [**Syllabus**][**Certificate**]

Introduction to Automata, Languages and Computation [**Syllabus**][**Certificate**]

TECHNICAL SKILLS

Web	ReactJS, Redux, Django, Django REST, Django Channels, Websockets, Yii, Express, HTML, CSS, Nginx, Apache
Programming Languages	Python, JavaScript, PHP, TypeScript, Java, C++
Operating Systems	Linux, Windows
Software & Tools	NodeJS, PostgreSQL, VS Code, Jetbrains IDEs, Postman, Jupyter, Docker, UFW, Git, Linux shell utilities, Vim, Pandas, NumPy, Matplotlib

NOTABLE ACHIEVEMENTS

Secured a rank of **5374** in JEE-Advanced 2017 which placed me in the top **0.4 percentile**

Was invited to give a talk about **Data Version Control** at SciPy India 2019 held in IIT Bombay, India. [**Video**] [**Presentation**]

Secured **5th place** out of **50 teams** in Syntax Error Hackathon sponsored by **HackerEarth, India**

Stood 1st in 4x100m Medley Relay, 3rd in 200m Backstroke, 3rd in 4x100m Freestyle Relay at **The Institute Aquatic Meet 2019**

Secured winning positions in Intra-Bhawan badminton and football tournaments 2018.

Awarded a shield for Proficiency in Academics for scoring a perfect **10 CGPA** in Class X in 2015.