Sahil Dhull

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2020	B.Tech	Indian Institute of Technology, Kanpur	9.0/10
2016	CBSE(XII)	Abhinav Public School, New Delhi	97.4%
2014	CBSE(X)	DAV Public School, Kurukshetra	10/10

Scholastic Achievements

- Secured **AIR 27** in **JEE Mains 2016** and **AIR 230** in **JEE Advanced 2016** among 1.5 million candidates
- Cleared **NSEP** (Physics), **NSEA** (Astronomy) conducted by IAPT (Indian Association of Physics Teachers) in 2015-2016
- Awarded **KVPY 2014** fellowship, securing **AIR 46** and **National Talent Search Scholarship 2012** by NCERT

Internship

ADOBE | Big Data Experience Lab, Bangalore *May'19 - Jul'19*
Research Intern under *Dr. Niyati Chhaya*, Senior Research Scientist

Objective	• **Customizing web experiences using real-time user interaction data**
Approach	• Led the data gathering and conceptualization for customizing web experience part • Implemented models such as **RBMs** and **Autoencoders** in Pytorch, and designed a PoC (**Proof of Concept**) • Integrated the mechanisms to capture user information in **real-time** from web interactions using JS libraries • Hosted 2 types of **surveys** on Amazon Mechanical Turk (**AMT**) for data gathering using multiple websites
Impact	• The live PoC, built using **JS** and **Flask**, shows the final output as well as the inner workings of the models used • Currently in the process of filing a **patent** and **paper** for the approach and work done in the field

Projects

GO to MIPS Compiler, CS335 under *Prof. Amey Karkare* *Jan'19 - Apr'19*
- Implemented a compiler in python for a subset of programs in **GO** language, targeting **MIPS**; using **PLY** framework
- Processed code in 4 stages: Lexing, Parsing and Semantic Checks, **3AC** Generation, and Assembly Code (MIPS) translation
- Incorporated support for **dynamic memory** allocation, **recursion**, multi-dim arrays, complex data types, multi-level pointers

Building GemOS, CS330 under *Prof. Debadatta Mishra* *Aug'18 - Nov'18*
- Implemented **system calls** (like expand, shrink, write, clone, sleep) and **exception handlers** like floating point and page fault
- Added **signal handlers** for SIGSEGV, SIGFPE, and SIGALRM and implemented **scheduling** using a round-robin scheme
- Implemented **Object Store** functionalities for a basic filesystem with and without caching, using **FUSE** APIs

Painter and Genre Classification, CS771 under *Prof. Piyush Rai* *Aug'18 - Nov'18*
- Used two approaches: Self-designed Convolutional Neural Network (**CNN**) and Feature extraction with Classification
- Constructed the CNN with **ReLU** activation and **Max Pooling** and, gained a maximum of **50**% test accuracy
- Used **VGG16** and **ResNet50** for feature extraction and for classification, used Logistic regression, SVM (with RBF kernel) and K-Nearest Neighbour, gaining a maximum test accuracy of **75.2**%

Other Projects

English Premier League, CS315 under *Prof. Arnab Bhattacharya* *Jan'19 - Apr'19*
- Implemented a database management system for a miniature scale model of EPL using **LAMP** stack with 20+ triggers

Deliver It App, CS252 under *Prof. Nisheeth Srivastava* *Aug'18 - Nov'18*
- Designed a community delivery app on **IONIC** Framework using Firebase Realtime Database and Leaflet Maps for **geolocation**

Fusion of Inertial Sensing IoT Devices - OBLU, CS664 under *Prof. Amey Karkare* *May'18 - July'18*
- Implemented a **Fusion algorithm** on Dual Foot-mounted Inertial Sensors' data to reduce Systematic Heading Drift

Technical Skills

Programming Languages: C, C++, Python, Bash, SQL, Javascript; `Familiar:` MongoDB, Promela, Mips, Verilog, PHP
Tools and Frameworks: Flask, IONIC Framework, PyTorch, Keras; `Familiar:` Docker, Pthreads, CUDA Programming

Relevant Coursework

Compiler Design	Operating Systems	Machine Learning	Advanced Algorithms
Database Management System	Computer Organization	Data Structures and Algorithms	Probability and Statistics

Extra-Curricular Activities

- Designed and fabricated a **Formula race car** for Formula Bharat 2018 and secured **15th rank** among teams from all over India
- Participated in **CBSE Regional Exhibition 2012** and **North-Indian Science Fair 2012** at National Science Center, Delhi
- Secured **1st** position in **State level Essay Writing Competition** by Govt. of Haryana in **2010**