Sahil Dhull

3rd Year Undergraduate
Department of Computer Science and Engineering

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2016 - Present	B.Tech	Indian Institute of Technology, Kanpur	8.7/10
2016	CBSE(XII)	Abhinav Public School, New Delhi	97.4%
2014	CBSE(X)	DAV Public School, Kurukshetra	10/10

Scholastic Achievements

- Secured **AIR 230** in **JEE Advanced 2016** among the 2 Lakh shortlisted candidates.
- Secured **AIR 27** in **JEE Mains 2016** among the 15 Lakh candidates.
- Cleared National Standard Examination in Physics (**NSEP**), National Standard Examination in Astronomy (**NSEA**) conducted by IAPT (Indian Association of Physics Teachers)
- Awarded **KVPY 2014** fellowship, securing **AIR 46** (out of a total of about 40,000 students).
- Participated in **North-Indian Science Fair 2012** at National Science Center, New Delhi.
- Participated in **CBSE Regional Exhibition 2012**.
- Awarded **National Talent Search Scholarship 2012** by National Council of Educational Research and Training.
- Secured **1st** position in **State level Essay Writing Competition** by Govt. of Haryana in **2010**.

Projects

GO to MIPS Compiler (*Jan'19 - Apr'19*)
Course CS335A [Compiler Design] under Prof. Amey Karkare `Github`
- Implemented a compiler in python for a subset of programs in GO language, targeting MIPS; using PLY framework.
- Processed input code in 4 stages: Lexing, Parsing and Semantic Checks, Three-Address Code Generation, and Assembly Code (MIPS) translation.
- Incorporated support for dynamic memory allocation, recursion, multi-dimension arrays, complex data types, multi-level pointers, multiple return types, functions with any number of parameters, and short variable declaration.

English Premier League (*Jan'19 - Apr'19*)
Course CS315A [Database Management System] under Prof. Arnab Bhattacharya `Report`, `Github`
- Implemented a miniature version of English Premier League using LAMP stack.
- Added 20 triggers for real time updates of goal scores, stats and charts.
- Ran a demo of a season showing substitutions, bookings, and goals in match, along-with the completion of the season.

Painter and Genre Classification (*Aug'18 - Nov'18*)
Course CS771A [Machine Learning] under Prof. Piyush Rai `Report`
- Used 2 approaches: Self-designed CNN and Classification after Feature extraction.
- Constructed CNN using convolutions, ReLU activation and Max Pooling and, gained a maximum of 50% test accuracy.
- Used VGG16 and ResNet50 for feature extraction and for classifcation, used Logistic regression, SVM (with RBF kernel) and K-Nearest Neighbour. Gained a maximum test accuracy of 75.2%.

Deliver It App (*Aug'18 - Nov'18*)
Course CS252A [Computing Laboratory II] under Prof. Nisheeth Srivastava `Github`
- Designed a community based delivery app for Android and iOS using geolocation services on IONIC Framework.
- Used Firebase Authentication Service for login system, Firebase Realtime Database for the backend, and Leaflet Maps for geolocation services.

Fusion of Inertial Sensing IoT Devices (*May'18 - July'18*)
Course CS664A [IoT System Design] under Prof. Amey Karkare `Report`
- Learnt about Hardware and Software aspects of OBLU (Multi IMU inertial sensing device).
- Implemented a Fusion algorithm on Dual Foot-mounted Inertial Sensors data to reduce Systematic Heading Drift resulting in a more precise navigation system.
- Plotted Real-time graphs showing Raw and Corrected trajectories to find out Drift and Distance Errors.

SAE IIT Kanpur | Team Member (*Jan'17 - Feb'18*)
Faculty Advisor - Prof. Shantanu De, Department of Mechanical Engineering `Webpage`
- Designed and fabricated a Formula race car (F-18) for Formula Bharat, a national collegiate design challenge.
- Secured 9^{th} position in Design Event, 6^{th} in Business Plan and 15^{th} position among 55 teams at Formula Bharat 2018.
- Part of Powertrain subsystem; designed the sprocket on Solidworks and simulated (and optimized) the design on ANSYS.

Technical Skills

Programming Languages:	C, C++, Python, SQL, Mips
Familiar:	Verilog, Bash, PHP, Javascript
Tools and Frameworks:	
Robotics:	MiniSAT, Z3 SMT solver, NuSMV Model Checker, LTLMoP (Linear Temporal Logic MissiOn Planning)
ML:	Octave, GNUPlot, R, Python (numpy, scipy, keras, etc)
Other:	Parallel Programming with Pthreads, GPU programming with CUDA, IONIC for App development
Mechanical:	ANSYS (Structural), AutoCAD Fusion, Solidworks, Autodesk Inventor

Relevant Coursework

Computers:			
Compiler Design	Database Management System	Formal Methods in Robotics	Machine Learning
Algorithms-II	Operating Systems	Theory of Computation	Computing Laboratory-I,II
IoT System Design	Data Structure and Algorithms	Computer Organization	Logic
Maths:			
Topology	Probability and Statistics	Discrete Mathematics	Abstract Algebra
Linear Algebra and ODE	Introduction to Calculus	Complex Variables	
Others:			
Introduction to Electronics	Introduction to Logic	Mechanics	Electrodynamics

Extra-Curricular Activities

- Bagged 3rd position as pool (Hall-3) in Robotricks, Takneek'16 (Inter-hall Technical Competition):
  Built a robot to preform simple tasks like lifting blocks and detecting coloured strips.
- Took part in Dance Competition in Galaxy-2017 (Inter-hall Cultural Event).
- Played Lawn Tennis as Compulsory Physical Activity.
- Participation at State Level Swimming Competition in Haryana; Category - Under 14 boys.