

Kanishk Singhal

B.Tech
Major in Computer Science and Engineering
Indian Institute of Technology, Gandhinagar

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ACADEMIC DETAILS

Degree	Specialization	Institute	Year	CPI/%
B.Tech.	Computer Science and Engineering	IIT Gandhinagar	2020-Present	9.1
Class XII	Physics, Chemistry, Maths	DAV Public School, Ghaziabad (CBSE Board)	2019-2020	95
Class X		DAV Public School, Ghaziabad (CBSE Board)	2017-2018	97

EXPERIENCE

- **Associate in Engineering Development Group (Summer Internship)** [May'23 - July'23]
MathWorks, India
 - Worked with the motor control blockset team to develop an application, using MATLAB and JavaScript.
 - Used OOPS concepts for building the Application. Designed the interface for controlling and managing data from external hardware like electric motors.

PROJECTS

- **Affects of Pruning on Uncertainty in Neural Networks (Research Project)** [August'23 - April'24]
(Advisor: Prof. Nipun Batra, Computer Science & Engineering, IIT Gandhinagar) | [Github](#)
 - Compared various Pruning Techniques among one shot, Iterative and re-initialization method for Neural Networks.
 - Improved results of custom and existing Models and Datasets on Out-of-Distribution Data.
 - Found technique to make models more Calibrated and Accurate while being smaller than original models
- **Compiler/Interpreter for Python based Language: Dino** [January'23 - April'23]
(Advisor: Prof. Balagopal Komarath, Computer Science & Engineering, IIT Gandhinagar) | [Github](#)
 - Building a compiler for a custom dynamically typed language Dino over Python.
 - Using Python for reading, parsing, resolving, typechecking and evaluating the abstract syntax tree generated.
 - Involves complete documentation and language specifications with unit tests.
- **Alumni Relations Management System** [January'23 - April'23]
(Advisor: Prof. Mayank Singh, Computer Science & Engineering, IIT Gandhinagar) | [Github](#)
 - Built a complete database using SQL involving tables, keys, constraints and users with different privileges with the help constructing a ER diagram according to requirements.
 - Deployed a frontend framework using HTML, CSS, TailwindCSS and flask to handle the database.
- **Networking utility program using eBPF** [August'22 - November'22]
(Advisor: Prof. Sameer G. Kulkarni, Computer Science & Engineering, IIT Gandhinagar) | [Project Report](#)
 - Built a packet filtering and port forwarding program using eBPF and BCC.
 - Program can be used to prevent DoS(Denial of Service) attack by recognizing too many packets from same IP address in small amount of time.
 - Can be used to forward packets to different port and reject packets before processing saving resources.
- **Assembler and Dis-assembler for MIPS Architecture** [January'22 - May'22]
(Advisor: Prof. Sameer G. Kulkarni, Computer Science & Engineering, IIT Gandhinagar) | [Github](#)
 - Built a GUI based Assembler and Dis-assembler for MIPS32 which converts machine code in binary and hexadecimal to human readable assembly code.
 - Developed a working GUI with pygame and python with takes input as files and and with input boxes.
- **Developed a portfolio site with ReactJS** | [Deployment](#) [May'22]
 - Designed and Built a Medical Portfolio Site using ReactJS and Material UI library. Deployed the application on netlify.
 - Integration with firebase to add and delete blogs, success stories and user authentication.
- **Website Development, Metis Summer Project** [June'21 - August'21]
(Metis, Coding Club of IITGN) | [Github](#)
 - Fullstack frontend and backend using PugHTML, CSS, JavaScript and NodeJS framework and deployed over heroku.
 - Implemented dynamic content fetching using APIs by developing database using headless CMS on Strapi.
- **Space Invaders & Egg Basket: Python Games** [Novemebr'20 - December'20]
(Advisor: Prof. Neeldhara Misra, Computer Science and Engineering, IIT Gandhinagar) | [Github](#)
 - Innovated, mapped and implemented retro-like fixed shooter arcade game (Space Invader) and a falling egg catching game following similar mechanics using PyGame library.
 - Added features to track current score and store high score in a separate file. Addition of music and increased difficulty with time for more immersive experience.

TECHNICAL SKILLS

- **Languages:** Python, C, C++, HTML, CSS SCSS, JavaScript, Solidity, Dart, Git.
- **Tools:** MATLAB, L^AT_EX, Github, LTSpice, Autodesk Inventor and Fusion, Android Studio.
- **Libraries:** Pygame, TailWindCSS, BootstrapCDN, Matplotlib, Numpy, Pandas.
- **Frameworks:** NodeJS, ReactJS, Flutter.

ACADEMIC ACHIEVEMENTS

- First Position in GRASP Launchpad 2.0 competitive programming challenge
- Dean's List in First year for academic excellence.

RELEVANT COURSES

- Probabilistic Machine Learning, Natural Language Processing, Machine Learning, Introduction to Data Science.
- Compilers, Database Management System, Operating Systems, Computer Networks, Computer Organization And Architecture.
- DSA - II, DSA - I.
- Digital Systems, Electrical Systems, Analog And Digital Electronics.
- Principles of Business Management, Theory of Computing, Discrete Mathematics, Mathematics IV (Probability and Numerical Methods), Mathematics III (Differential Equations), Mathematics II (Multi variable Calculus), Mathematics I (Vector Algebra).

POSITIONS OF RESPONSIBILITY and EXTRA-CURRICULAR ACTIVITIES

- **Instructor, Introduction to Web Development Series**
 - Conducted a series of 3 shortcourses to introduce students to web development. The series covered concepts from basics of web dev to building backend and deployment.
 - * Introduction to Web Development [August'23]
 - * Introduction to ReactJS [October'23]
 - * Introduction to NodeJS & MongoDB [March'24]
- **Secretary, Metis - The Coding Club, IIT Gandhinagar** [May'22 - Present]
 - Currently managing the activities of the coding club of IIT Gandhinagar circulating projects and encouraging students to be a part of the development community.
 - Circulated Projects for students to engage in summer vacations.
- **Instructor, HackRush'22, IIT Gandhinagar | [Project Link](#)** [March'22]
 - Organized and Instructed Web Development workshop teaching bare bones of building a website from scratch.
 - Built a portfolio website with HTML, CSS, JavaScript using TailwindCSS live with students during the workshop.
- **Event Executive, Blithchron - Annual Cultural Fest, IIT Gandhinagar** [January'21 - March'22]
 - Ideation and Implementation of various events for the community as a part of team of hundred members.
 - Led and managed a team of five members to organize a event at a national scale to resulting in a footfall from other prestigious institutes.