KISHEN N GOWDA
Discipline of Computer Science and Engineering
Indian Institute of Technology Gandhinagar

Third Year Undergraduate
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EDUCATION

Examination	University	Institute	Year	CPI/%
Graduation	IIT Gandhinagar	IIT Gandhinagar	2017- present	9.52
Intermediate/+2	Telangana State Board of Intermediate Education	Sri Chaitanya Junior Kalasala	2017	97.5
Class X	Telangana State Board of Secondary Education	St. Patricks High School	2015	10

INTERNSHIPS

STRIP PACKING PROBLEM (APPROXIMATION ALGORITHMS) - Narendra Summer Internship Program, CSA, IISc   May - July 2019

Faculty Mentor: Dr. Arindam Khan, IISc

- Studied the 2D Strip Packing Problem, a geometric packing based classical problem. Aim was to develop an *efficient* algorithm with approximation ratio less than 2.
- Analyzed Steinberg's algorithm and Schiermeyer's algorithm and identified the problem cases, i.e, cases when these two algorithms attains 2OPT.
- Designed strategies as well as modified Steinberg's algorithm and proved that in most cases our algorithm performs with a better approximation ratio. Our algorithm has a time complexity $O(n^2)$ and can be implemented more efficiently.
- Currently working to prove that the algorithm proposed covers all cases.
- Link to Github Repository.

HOME AUTOMATION (IoT) - SSTP '18, IIT Gandhinagar   May - July 2018

Faculty Mentor: Dr. Neeldhara Misra, IIT Gandhinagar

- Designed a compact and convenient Home Automation System with an inclusive design and voice control.
- Developed a Dashboard application (Django), worked on building the system and designing circuits.

KEY PROJECTS

DYNAMIC DISPLAY SERVICE   Jan 2019
HackRush, IIT Gandhinagar   Hackathon

- Developed a Dynamic Display Service for efficient display of various events on screens present at different locations.
- Created a Web App on Webslides JS with Django as backend. Used Airtable API to fetch data of events.

PERSONAL ASSISTANT (CHATBOT)   Dec 2018
Coding Hackathon, Inter IIT Tech Meet 2018, IIT Bombay   Hackathon

- Developed a Personal Assistant Chatbot with features like auto notifications about medicines based on doctor's prescription, user defined notifications, railway PNR status and also checking railway availability.
- Built the chatbot using Facebook Messenger Developer options and used *ngrok* for inspection and debugging. Trained the bot using *wit.ai*. Used Railway API for railway details. Used Django as backend.

SYNCHRONOUS FSM VERILOG CODE GENERATOR   Oct-Nov 2018
Dr. Joycee Mekie (Course Project)   Digital Systems

- Created a Synchronous FSM Verilog code generator. Generates verilog code, test bench and constraints files and implements the program in the FPGA, if connected.
- Used lark parser to parse required data from the file, created standard templates and rendered them using jinja2. Used Django as backend and *tcl console* of Xilinx Vivado for implementation.

Simulating Brownian Motion based on unpredictability in the Quantum Realm — Oct-Nov 2018
Prof. Krishna Kanti Dey (Course Project) — Physics Lab

- Used the phenomenon of Quantum Tunnelling and designed a emitter reverse biased transistor circuit for generating random output. Unbiased the output by using Von Neumann decorrelation. Verified the randomness of output using bytewise arithmetic mean, chi squared test and monte carlo pi test. Simulated a Wiener process using the random bits generated as displacement.

<u>Other Projects</u>

- **Equilibrium Temperature Distribution in Objects** (Mathematics II - Course Project) Simulated the approximate temperature distribution of a body at equilibrium, given boundary conditions.
- **Technical Council Website Developer**, IIT Gandhinagar.

Academic Achievements

- Recipient of *Dean's List : 2017-18 Sem I, Sem II, 2018-19 Sem III, Sem IV*, awarded by IIT Gandhinagar
- Recipient of *Zonal Award* in IMO 2017
- Recipient of *Excellence in Academics*, awarded by St. Patricks High School: 2015
- Recipient of *Academic Topper*, awarded by St. Patricks High School : 2013, 2014 and 2015

Skill Summary

Programming Languages:	proficient in Python, C++ and C.
Software Skills:	Xilinx Vivado (Verilog), GDB, LaTeX, Git, Autodesk Inventor. Familiar with LTspice, Keil(ARM 7TDMI).
Development:	HTML, CSS, Bootstrap, JavaScript, Django, JavaScript, NodeJS with ExpressJS.
Languages:	English, Hindi, Kannada, Telugu.

Positions of Responsibility

- Group Representative, GRASP - Group for Algorithms and Sport Programming, IIT Gandhinagar.
- Event Organiser and Problem setter of D'code, the competitive programming contest in Amalthea'18, Technical Summit, IIT Gandhinagar.
- Problem Setter of CodeRush, the competitive programming contest in Ignite'19, Technical Fest, IIT Gandhinagar.
- Problem Setter, Organiser and Web Developer, HackRush'19, Annual Intra College Hackathon.
- Problem Setter, Codefry (2019), Periodic Intra college competitive programming contest, IIT Gandhinagar.

Key Courses Undertaken

Computer Science:	Computing (Python), Digital Systems, DSA I + Lab, DSA II, Discrete Mathematics, Computer Organization and Architecture, Operating Systems*, Theory of Computation*, NLP*
Mathematics:	Real and Complex Analysis, Vector Calculus, Linear Algebra, Differential Equations, Probability and Statistics, Numerical Methods, Computational Physics*

* to be completed by December 2019

Extra-Curricular Activities

- Competitive Programming - Active on <u>Codechef</u>, Google Kickstart, Hackerearth.
- Attended Google Tech Inter Connect 2018 at Google, Hyderabad.
- Organized workshops on Competitive Programming, Web development and Web Scraping.

<u>Personal Website</u>   <u>LinkedIn</u>