

RITESH KUMAR

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EDUCATIONAL QUALIFICATIONS

Year	Degree	Institution(Board)	CGPA/%
July'17 – June'21 (expected)	B.Tech, CSE	Indian Institute of Technology, Kanpur	9.5/10.0
2016	CBSE – XII	Shiksha High School, Bikaner	92.8%
2014	CBSE – X	Oak Grove School, Mussoorie	10.0/10.0

SCHOLASTIC ACHIEVEMENTS

- **Academic Excellence Award**, last 3 consecutive years
- Awarded, **Dr. Prateek Mishra Memorial Scholarship**
- **Top 100**, Indian Coders on Codeforces, **Master Coder**
- **Rank 45**, ACM-ICPC Regionals, 2018
- **Rank 42**, JEE Main (amongst 1.5 million candidates)
- **Rank 578**, JEE Advanced (amongst 0.2 million candidates)
- **Rank 1000**, KVPY Scholar

PROJECTS

Weekend RSA Attack and AES Attack *IIT Kanpur, India*
Course Project March 2020

- Used copper-smith algorithm to break RSA given small public exponent(e) in sage
- Key recovery attack on 5-round AES with a single secret s-box

SAT Solver *github://riteshkumartbz/quicksat*
Course Project Nov' 2018

- Implemented SAT solver using improvised Semantic Tableaux and Davis–Putnam–Logemann–Loveland (DPLL) algorithm
- Used various heuristics like unit propagation, deterministic frequency and weightage functions to speed up the process

Gold-Bug Cipher in Haskell *IIT Kanpur, India*
Course Project April 2019

- Decrypted a mono-substituted cipher text
- Used various heuristics like frequency analysis, bigram and trigram analysis and hamming distance comparison

Dive Deep into Competitive Programming *IIT Kanpur*
Association For Computing Activities Jan' 2019 - April 2019

CRC Checksum-Hamming Network Decode *IIT Kanpur*
Course Project Jan' 2020 - April 2020

POSITIONS OF RESPONSIBILITY

- **Core Team, Counselling Service**
Responsible for smooth conduction of institute-level classes and hall-level sessions, planning events for welfare of students
- **Academic Mentor**
Provided academic support to students by conducting remedial classes, one-to-one mentoring and doubt classes
- **Student Guide**
Conducted Orientation Program for the new batch of 2018. Provided emotional support and guidance to the counselees, helping them adjust to the new life

RELEVANT COURSES

Introduction to Programming	Database Management	Computer Organization	Introduction to ML
Data Structures and Algorithms	Probability	Computing Lab-1	Computing Lab-2
Linear Algebra	Operating Systems	Computer Networks	Algorithms II
Compiler Design	Modern Cryptography	Theory Of Computation	Logics

WORK EXPERIENCE

Research Intern *Work From Home*
Adobe May 2020 - July 2020

- Used state of the art Bayesian optimiser to improve the accuracy of the state-of-the-art models.
- Developed an user-friendly interface that can cater to a diverse group of citizen data scientists
- Reduces hyperparameter tuning time by 20x while achieving equivalent or better performance than reported baselines
- Automated the Recommendation system pipeline

Machine Learning Intern *Bangalore, India*
Shopx E-Commerce Company May 2019 - July 2019

- Studied sliding windows, used open-source implementation of Google's Multi-digit Number Recognition framework
- Used an open source implementation of a bidirectional stacked LSTM using CNN features as input with CTC loss as the main character recognition framework
- Tried various pre-processing techniques like Gaussian, Ostu, Niblack etc to enhance the network's results and ended up choosing sauvola's local thresholding with results depending on it's hyper-parameters
- After carefully tuning the hyper-parameters and applying some document specific heuristics, were able to get satisfactory results

Full Stack Developer Intern *IIT Kanpur, India*
Prof. Sandeep Shukla, IIT Kanpur May 2018 - July 2018

- Created web application Lexicon with the motive to teach English and enhance vocabulary
- Used PHP as the server scripting language, and MySQL for storing, manipulating and retrieving data from the database
- Had various features like up-voting, a trending section to promote the trending words, and a personalized section where users can see the words liked by them

SKILLS

- **Programming Languages**
C, C++, Python, Php, Haskell, R
- **Software and Tools**
Git, Latex, Linux shell utilities, Verilog, Tensorflow, Numpy, ScikitLearn, OpenCV

MISCELLANEOUS

- Awarded A* for exceptional performance in Technical Arts
- Highest rating of **5 star** on Codechef