

Pratik Bhangale

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📍 Location 🌐 GitHub 🔗 LinkedIn

Education

B.tech in Computer Science

Minor in Microelectronics

IIT Kanpur | 2018 | GPA : 7.6/10

Class XII in Maharashtra Board

Tanwani Jr College | 2014 | 87.54 %

Class X in Maharashtra Board

Tanwani Eng. Sch. | 2012 | 98.00 %

Skills

Programming:

• C/C++ • Python • Matlab • Verilog
• Shell Script • SQL

Libraries and Tools:

• Tensorflow • Keras • PyTorch
• OpenCV • NLTK • Django • GIT
• Perforce • Makefile • LATEX • GDB
• Altium PCB designer

Operating Systems::

•Linux(Arch/Debian) •Windows

Coursework

- Reinforcement Learning (MOOC)
- Natural Language Processing (A)
- Introduction to Machine learning (A)
- Computer Architecture (A)
- Computer Systems and Security (A)
- Computer Networks
- Compiler Techniques
- Operating Systems
- Database Management Systems
- Data Structures & Algorithms
- Probability & Statistics
- Digital Electronics
- Introduction to Microelectronics

Responsibilities

- Coordinator, Electronics Club IITK
Mar '16 - Feb '17
- Sub-head, Team Robocon IITK
Jul '15 - Mar '16

Interests

- Machine Learning and AI
- Computer Systems
- Microelectronics

PROFESSIONAL EXPERIENCE

SOFTWARE ENGINEER Samsung Research Institute, Noida

June '18-Present

- Part of Android kernel development & Embedded devices bring up team for Qualcomm and Exynos Chipsets. Currently working on Android Pie & Q projects
- Optimize and port boot loader and device kernel for latest Samsung mobile devices
- Designed & Implemented an automated bringup process to speed up project delivery
- Samsung Software Competency(SWC) certified Professional coder

SOFTWARE INTERN Samsung Research Institute, Noida

May '17 - July '17

- Developed two factor authentication system for Fingerprint called BioHashing
- Detected core-points in a Fingerprint using Gradient Orientation Map & hashed it to multi-dimensional vector to generate a BioHash for preventing misuse of biometrics

ACHIEVEMENTS

- Recipient of Kishor Vaigyanik Protsahan Yojana (KV PY) scholarship by IISc, Bangalore
- Appeared in Indian National Chemistry Olympiad (INChO) among top 300 students
- Recipient of National Talent Search Examination (NTSE) scholarship by NCERT
- Second Runners Up in ABU Robocon India 2016 representing IIT Kanpur
- First place in Electromania, Techkriti (Annual Technical Festival of IIT Kanpur)

RESEARCH AND PROJECTS

deCAPTCHA Prof. Purushottam Kar, IITK | [code](#)

July '17 - Nov '17

- The objective was to build efficient algorithms to break squirrel mail captchas
- Used K-means clustering and Image Processing tools to overcome heavy noises and clutters cutting through captcha text that makes it difficult for CNN models to work
- Implemented CNN models in PyTorch for character recognition which proved to be 98% accurate for character recognition and 85% for entire captcha

MACHINE COMPREHENSION Prof. Harish Karnick, IITK | [code](#)

Dec '17 - Apr '18

- Objective was to help machine understand the comprehension and answer questions
- Word and character embeddings of comprehensions and questions were passed into Bi-Directional LSTM layers to extract information vector from tokens of the text
- Question Attention Layer was generated to find out important information of question, which later is multiplied with comprehension to get probable positions of answer
- Model proved to be 97% effective on bAbI dataset by Facebook

COMPUTER ARCHITECTURE Prof. Mainak Chaudhuri, IITK | [code](#)

Dec '16 - Apr '17

- Designed and simulated state-of-the-art cache replacement policies like Least Recently Used(LRU), Static Re-reference Interval Prediction(SRRIP) and Signature based Hit Predictor (SHiP) using Pintool by Intel on 16 set-associative L3 Cache
- Implemented Pipelined MIPS processor with Register Forwarding to avoid data hazards on KSIM simulator

C TO x86 COMPILER Prof. Amey Karkare, IITK | [code](#)

Dec '16 - Apr '17

- Developed a full fledged Compiler for a subset of C for x86 architecture in python
- Implemented Lexical Analyzer, Parser, Three address code & Assembly code generator
- The compiler supported basic arithmetic, conditionals, mutual recursion, parameterized functions, global declarations and scope handling

ABU Robocon '16 Prof. Bhaskar Dasgupta | IITK

Sept '15 - Mar '16

- Designed & fabricated one autonomous and one semi-autonomous robots which could complete tasks like pole climbing, object placing, line and wall following to participate in ABU Robocon 2016 competition

MINI PROJECTS

- Flappy Bird AI using Q-Learning and Reinforcement Learning using Keras
- Hotel automation system using Django and SQLite
- File Sharing with user authentication system on network using Socket programming
- OS process scheduling, system calls, page allocation implementation for NachOS
- Chat Bot with slack and hubot integration to do personalized tasks like setting reminders, fetching emails, adding notes and setting up team meetings