Abhishek Pratap Singh

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Work Experience

- **Embibe, Bengaluru** *(Designation: Software Development Engineer 2)*   *[Nov'19 - Present]*
    - Designed and implemented OCR web micro-service for recognizing hand-writing and text in images, automated image preprocessing for better results.
    - Contributed in restful APIs for converting Exam questions in doc format to json objects in database.
- **Huawei Technologies India Pvt. Ltd, Bangalore**
  (Designation: Technical Project Leader)   *[July'17 - Oct'19]*
  Distributed Network Attached Storage (NAS).
    - Optimizations for large IO operations on distributed file system.
    - Worked on protocol for managing **distributed cache** to accelerate distributed NAS storage.
    - Contributed in development of distributed Read Ahead Cache managment.

  IoT: Internet of Things Network Stacks (lwip, uip).
    - Linux support for RPL(Routing Protocol for Low Power and Lossy Network).
    - RFCs implementation for lwip (light weight ip stack). Implementation of IOCTLs. Bug-fixes and modifications in existing open-source code according to requirements.
    - Added RPL support in lwip, APIs for adding static default routes and prefixes, Stateless auto configuration of global addresses. Hop by Hop header creation and processing, functionality of enabling/disabling MAC security for a particular flow(TCP/UDP) etc.
    - Unit Testing and functional testing using Python and Scappy, using Castellia framework.

  Proof of Concept and Research Work.
    - Designed and implemented mp4 video preview maker in c++ from scratch.
    - eBPF and XDP analysis, presentation and demonstration, application of it in DDOS attack mitigation.
    - Simulation results of Multi-path QUIC. Analysis and Presentation for MPQUIC(Alternative of TCP developed by google).

Projects

- **Authentication using Finger Movement on Android phone Touch Screen (Machine Learning).**
    - Tracked finger movement on android touch screen.
    - Used Support Vector Machine (SVM) for classification (recognition of authorized user).
- **Simulation Modeling of a Web server**
  (Guide: Prof. Varsha Apte)   *(Mar'15 - Apr'15)*
    - Built a discrete event simulator for a **closed queuing** web server application; analyze the performance metrics such as CPU Utilization, Throughput and Response time.
- **Extraction of information about RSS and WSS of a Process in Linux kernel.**   *[CS401 Kernel Programming]*
  (Guided by Prof. Purushottam Kulkarni Spring 2015)
    - Implemented loadable kernel module with logic to find out the size of rss and wss of process by using Paging hierarchy.

Education

Examination	University	Institute	Year	CPI/%
Post Graduation (Computer Science & Engg.)	IIT Bombay	IIT Bombay	2016	8.6
Graduation (Computer Science & Engg.)	G.B.T.U.	MMMEC Gorakhpur	2013	68.9
Intermediate	CBSE	SSMV	2009	79.6
Matriculation	CBSE	JNV Shahjahanpur	2007	79.2

Technical Skills

- **Programming Languages**: Java, C, C++, Python, GoLang
- **Technologies**: Flask, Redis, Docker, ns3, Bash, Awk, Sed, Makefile, Git, Loadable Kerenel Modules
- **Databases**: Postgresql, Elasticsearch