Vivek Kumar

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Summary

I have been involved in designing and building software, for more than a decade. My interests include but not limited to Scalable Distributed Systems, Performance Engineering, Parallel Computing, HPC, Micro-service Architecture, Full Stack Engineering and, Backend development.

Experience

Pluribus Networks, Bangalore | Senior Software Engineer
2017 - Present

I work on an architecture which simplifies our clients' software-defined data centers by virtualizing networking hardware, enabling them to build scalable and secure private and public clouds.

- *Super Fabric*: Designed and developed hierarchical distributed transaction framework for seamlessly build and manage hyper-scale infra (>256 nodes)
- Solved the scalability problem on heterogeneous cluster of nodes by re-architecting the product using the *worker-thread model*
- Developed a distributed framework for upgrading multiple nodes, thereby reducing network downtime and enhancing customer experience
- Reduced product memory consumption by 7x or more, by *implementing* a more efficient *hash table* that improved scalability
- Forged the system in performance, by troubleshooting activities like memory leak fixes, file system issues etc. that improved overall efficiency

Goldman Sachs, Bangalore | Senior Software Engineer
2013 - 2017

Worked on various roles in the Technology Infrastructure team which manages the firm's computing needs

- *Enterprise Scheduling Platform*: Had sole responsibility for designing and implementing a secure, scalable, and highly available job scheduling solution for Goldman Sachs' internet-facing services for the public and for other external clients • Coordinated with other cross-functional teams to implement features and to bring the project to fruition
- *Grid Computing Infrastructure*: Worked on dynamic scaling problems that included improving the APIs, and enhancing master-worker protocol messages to fix memory leak issues
- *Cloud Computing Platform*: Created an automated tool for performance analysis and devised a *Linux crash analysis tool* • Worked on *green computing* efforts on bare metal infra and, developed automated hypervisor *performance engineering framework*

Enterprise Management software for Universities | Creator
2012-13

Developed a software that digitized the operations of the student cafeteria at the reputed *Indian Institute of Management - Lucknow*, which caters to a community of over a thousand people. Features of the software included inventory management, billing, fraud prevention, record keeping, and accounting. It resulted in significant cost savings of *INR 4 million* annually for the university community.

Larsen & Toubro, Bangalore | Software Developer
2008–11

- Conceived and created an automation project that helped estimate costs and other resource requirements for new projects by analysing parameters of previous projects which improved efficiency by 7x compared to the previous manual process
- Created a new *suite of automation tools* including automatic generation of engineering schematics, a new employee resource portal, PDF editing tools, and spreadsheet editing tools

Skills

Languages
- Python • C/C++ • Erlang • Scala
- Bash/Shell Scripting
- JavaScript/CSS/HTML • SQL
- CUDA • RUST (learning)

Frameworks
- Pyramid • Python Twisted
- Erlang/OTP

Database and Messaging
- RabbitMQ • SQLite
- PostgreSQL • MS SQL

Tools
- GDB • eBPF tools • tcpdump

Misc
Code review and mentoring

Education

MS | Computational Science
IISc, Bangalore | 2011-13
- Research: GPGPU and Distributed systems • First-class

BE | Electronics and Communication
PSG Tech, Coimbatore | 2004-08
- Research: Robotics • First-class

Activity and Awards

- Won the Larsen & Toubro ICON award given annually to employees contributing most to innovation
- Won the best project award in seven national level technical symposiums
- Community teamwork captain focusing on internet literacy for the elderly
- Received a letter of appreciation from the prestigious Indian Institute of Management for working on its campus digitization project
- Published in ATMEL international online journal (Summer '07) on the applications of microcontrollers in robotics
- Received Principal's gold medal in high school

Other Interests

Kung-fu, Yoga, Dancing, Hiking, Travel, Science documentaries and Technology podcasts