

Vivek Jain

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Networking and Systems

EDUCATION

- **University of California Riverside** Riverside, CA, USA
Pursuing Ph.D.; GPA: 3.95 / 4 *September 2019 - Present*
- **National Institute of Technology Karnataka** Surathkal, Karnataka, India
M.Tech in Computer Science and Engineering; GPA: 8.56 / 10 *Aug 2016 - June 2018*
- **Shri Guru Gobind Singhji Institute of Engineering and Technology** Nanded, MH, India
B.Tech in Computer Science and Engineering; GPA: 8.35 / 10 *Aug 2011 - June 2015*

EXPERIENCE

- **Google LLC** *Sep 2022 - Dec 2022*
Student Researcher
 - Worked on understanding and quantifying in-host congestion in a multihost NIC
- **Google LLC** *Jun 2022 - Sep 2022*
Software Engineering Intern
 - Worked on modelling receive path for multihost RDMA NIC and understanding in-host congestion
- **ns-3 (Open Source)** *Dec 2017 - Present*
Maintainer for TCP module and Active Contributor
 - Developed various AQM & TCP model: ECN, PRR, DCTCP, BBR, PI, BLUE, SFBlue
 - Serving as Google Code In & Google Summer of Code mentor for the ns-3 project from last 3 years
- **Juniper Networks Inc.** *Jun 2021 - Sep 2021*
Software Engineering Intern
 - Worked on service-mesh observability and anomaly detection in multi-cluster environment
- **Tarana Wireless India Pvt. Ltd.** Pune, India
Network Software Engineer *Jun 2018 - September 2019*
 - Responsible for integration of different control plane modules.
 - Developed a LTE-type BSR functionality which involved writing kernel module to estimate incoming traffic
 - Built a library to write and read from FPGA registers
- **IBM India Pvt. Ltd.** Bangalore, India
Software Engineering Intern (Extreme Blue Intern) *May 2017 - Jul 2017*
 - Implemented a proof of concept that demonstrates Container Management on PowerVM platform by using OpenStack Heat, IBM Spectrum CFC.
 - Developed python automation scripts for easy installation and deployment of OpenStack with the IBM CFC.
- **Great Software Laboratory Pvt. Ltd.** Pune, India
Software Engineer *Dec 2017 - Jan 2018*
 - Worked on the development of cloud security solution with an objective to secure the workload of user in a cloud-based environment.
 - Designed and developed a user interface using Vaadin GWT for orchestration of OpenStack cloud platform.

SKILLS

- **Programming Languages:** C/C++, Go
- **Technologies and Framework:** Knative, gRPC, protobuf, Openstack, Linux device drivers, gTest, Docker containers
- **Build Systems and Version control:** Bazel, Make, Git, Gerrit
- **Domain:** Computer Networks, Data center Networks, Cellular Networks, Operating Systems, Distributed Systems

PUBLICATIONS

- **Jain, Vivek, et al** “L25GC: A Low Latency 5G Core Network based on High-Performance NFV Platforms.” Proceedings of the 2022 Conference of the ACM Special Interest Group on Data Communication.
- **Vivek Jain**, Shixiong Qi, Sourav Panda and K. K. Ramakrishnan. “Evolving to 6G: Improving the Cellular Core to lower control and data plane latency.” 2022 IEEE 1st International Conference on 6G Networking. [**Best paper award**]
- **Jain, Vivek**, Shixiong Qi, and K. K. Ramakrishnan. “Fast Function Instantiation with Alternate Virtualization Approaches.” 2021 IEEE International Symposium on Local and Metropolitan Area Networks (LANMAN). IEEE, 2021.
- A. Mohammakhan, K. Ramakrishnan, **V. Jain**. “CleanG - Improving the Architecture and Protocols for Future Cellular Networks With NFV” in IEEE/ACM Transactions on Networking. DOI: 10.1109/TNET.2020.3015946
- **Vivek Jain**, Thomas R. Henderson, and Mohit P. Tahiliani. ”Data Center TCP in ns-3: Implementation, Validation and Evaluation.” Proceedings of the 2020 Workshop on ns-3. 2020.
- **Jain, Vivek**, Viyom Mittal, and Mohit P. Tahiliani. “Design and implementation of TCP BBR in ns-3.” Proceedings of the 10th Workshop on ns-3. 2018.
- Mittal, Viyom, **Vivek Jain**, and Mohit P. Tahiliani. “Proportional rate reduction for ns-3 TCP.” Proceedings of the 10th Workshop on ns-3. 2018.
- **Jain, Vivek**, et al. “Implementation and validation of BLUE and PI queue disciplines in ns-3.” Simulation Modelling Practice and Theory 84 (2018): 19-37.