Anil Yelam

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Statement

I am passionate about understanding and improving the performance of systems and networking stacks that underpin modern Cloud platforms. With the end of Moore's law in sight, I believe that future applications require much tighter vertical integration with lower OS layers and specialized hardware (accelerators) for improved performance. At UC San Diego, I am advised by **Prof. Alex Snoeren** and my current work focuses on accelerating (networking) applications using programmable network interface cards (NICs).

Education

- **University of California San Diego** — San Diego, CA
  PhD in Computer Science; GPA: **3.96** — *Fall 2018 - Present*
- **Indian Institute of Technology Kharagpur** — Kharagpur, India
  B.Tech. in Computer Science and Engineering; GPA: **3.83** (9.58/10.0) — *Aug. 2010 – July. 2014*

Publications

- **SmartNIC Performance Isolation with FairNIC: Programmable Networking for the Cloud** – Stewart Grant*, **Anil Yelam***, Maxwell Bland and Alex C. Snoeren. *SIGCOMM '20*
  (*Co-first authors)

Experience

- **UC San Diego** — San Diego, CA
  Graduate Researcher, Advisor: Prof. Alex Snoeren — *Oct 2018 - Present*
  - **Multi-tenancy in Programmable NICs** – Offloading computation to programmable NICs offers a scalable way for network processing at higher (40&100G) network speeds. In this work, we are developed performance isolation mechanisms on these NICs to enable the offloading benefits for tenant VMs in the cloud.
    `SoC SmartNICs` `NIC Drivers` `Linux SKB` `DPDK` `C` `Python`
  - **Analyzing Network Performance of Spark** – The goal was to understand efficiency of data analytics frameworks like Apache Spark and Giraph at converting extra network bandwidth into job speedup. Involved tuning these platforms for optimal performance like garbage collector tuning and NUMA-aware task scheduling.
    `Apache Spark` `Apache Giraph` `Hadoop` `Java GC Tuning` `NUMA-aware` `Python`
- **Microsoft (Azure)** — Seattle, WA
  Software Engineer — *Dec 2014 - Jul 2018*
  - **Azure SQL VM** – Developed a control plane for provisioning SQL Server Linux VMs and SQL Server Availability Groups on Microsoft Azure. This included building highly available and scalable services that are deployed to all Azure regions and offer four 9's availability for provisioning and management of these resources.
  - **Azure SQL Database** – Was part of Azure Database team that offers SQL Server Database on PaaS and IaaS platforms on Microsoft Azure, where I developed and maintained services that support a range of features for Azure SQL Database like automated performance optimizations for user databases.
    `Azure VMs` `SQL` `Failover Groups` `C#` `C++` `Python` `Linux` `Azure Service Fabric` `SOA`
- **IIT Kharagpur** — Kharagpur, India
  Undergraduate Researcher, Advisor: Prof. Arobinda Gupta — *Summer 2013 - 2014*
  - **Event Delivery in Vehicular Networks** – Developed optimal heuristics for NP-hard minimum-delay event delivery problem in vehicular networks, where events are delivered to vehicles moving through a city through road-side units with limited capacity. Evaluated the performance of these heuristics over Tokyo city traffic patterns.
    `MANETs` `Pub/Sub Messaging` `C` `NP-Hard` `Biobjective Optimization`

Awards

- **Institute Silver Medal** for the best academic performance at IIT Kharagpur, 2014.
- Multiple promotions during the three years at Microsoft for exceptional performance in the Azure Database team.
- **Patent** for Automated Database Index Recommendations for improvements in Azure SQL Database, 2015.
- Top 0.1% in top-tier engineering entrance exams in India (JEE, AIEEE) that saw over a million applicants, 2010.