

# Pravein Govindan Kannan

## PERSONAL DATA

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GOOGLE SCHOLAR: <https://scholar.google.com.sg/citations?user=Gpz8nHIAAAAJ>

## EDUCATION

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JAN 2015 - SEP 2019 PhD, **School of Computing, National University of Singapore**  
Thesis Title : Improving Network Diagnostics using Programmable Networks  
Advisor : [Dr. Mun Choon Chan](#)  
AUG 2010 - JUL 2012 Master of Computing, **National University of Singapore**  
AUG 2004 - JUL 2008 Bachelors in Engineering in COMPUTER SCIENCE  
**College of Engineering, Guindy** (Anna University, Chennai)

## CAREER HIGHLIGHTS (ACHIEVEMENTS)

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SEP 2019 [Facebook Research Award](#) on Systems & Networking.  
AUG 2019 Research Achievement Award at School of Computing, NUS.  
APR 2019 Best Paper Award at ACM SOSR '19.  
APR 2017 I&E (Innovation/Entrepreneur) Practicum Award at School of Computing.  
JAN 2017 Participated in GYSS (Global Young Scientist Summit) 2017 as  
LO officer of [Dr.Vinton Gray Cerf](#) (ACM Turing Award Winner).  
JAN 2015 Awarded President Graduate Fellowship in National University of Singapore.  
APR 2013 Awarded Multiple CAP awards for best performer at Cisco Systems.  
FEB 2008 Honorary mention at ACM ICPC programming contest for securing  
13th rank asia-wide.

## WORK EXPERIENCE

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OCT 2019 - PRESENT | Postdoctoral Research Fellow, Singtel Cybersecurity Lab, NUS  
*Working on in-Network anomaly detection*

JAN 2019 - SEP 2019 | Research Associate, National Cybersecurity Lab, NUS  
*Worked on SDN provisioning using network virtualization techniques*

JUL 2018 - OCT 2018 | Exchange Research Student, New York University, New York  
*Worked with [Dr. Anirudh Sivaraman](#) on identifying primitives and domain-specific language for network-wide programmable model using Smart-NICs and Programmable switches.*

SEP 2014 - JAN 2015 | Research Associate, School of Computing, NUS  
*Worked on SMART Future-Urban Mobility Project.*

MAY 2012 - SEP 2014 | Senior Software Engineer, Cisco Systems

| *Worked on Infrastructure and forwarding modules for Virtual Services Module for ASR9k Router.*

DEC 2010 - MAY 2012 | Research Assistant, School of Computing, NUS

| *Worked on SMART Future-Urban Mobility and power-conservation on Mobile phones using network and display optimizations.*

AUG 2008 - JUL 2010 | Software Engineer, Cisco Systems

| *Worked on Infrastructure and forwarding modules for GSR Router.*

## PUBLICATIONS

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DéjàVu : Synchronized Network-wide Monitoring and Debugging in Data Centers  
[Under Submission]

Pravein Govindan Kannan, Nishant Budhdev, Raj Joshi, Mun Choon Chan

On Programmable Networking Evolution

[Under Submission]

Pravein Govindan Kannan, Mun Choon Chan

Programmable Calendar Queues for Packet Scheduling

[USENIX NSDI '20]

Naveen Kr. Sharma, Chenxingyu Zhao, Ming Liu, Pravein Govindan Kannan, Changhoon Kim, Arvind Krishnamurthy, Anirudh Sivaraman

Sluice: Network-Wide Data Plane Programming

[ACM SIGCOMM Posters & Demo '19]

Vikas Natesh, Pravein Govindan Kannan, Anirudh Sivaraman, Ravi Netravali

Precise Time-synchronization in the Data-Plane using Programmable Switching ASICs

[ACM SOSR '19] **Best Paper Award!**

Pravein Govindan Kannan, Raj Joshi, Mun Choon Chan

BNV: Enabling Scalable Network Experimentation through Bare-metal Network Virtualization

[USENIX CSET '18]

Pravein Govindan Kannan, Ahmad Soltani, Mun Choon Chan, Ee-Chien Chang

Raptor: Scalable Rule Placement over Multiple Path in Software Defined Networks

[IFIP Networking '17]

Pravein Govindan Kannan, Mun Choon Chan, Richard Ma, Ee-Chien Chang

Enabling SDN Experimentation in Network Testbeds

[ACM SDN/FVSec '17]

Sivaramakrishnan Ramanathan, Pravein Govindan Kannan, Mun Choon Chan, Jelena Mirkovic, Keith Sklower

Low cost crowd counting using audio tones

[ACM Sensys '12]

Pravein Govindan Kannan, Seshadri Padmanabha Venkatagiri, Mun Choon Chan, Akhihebbal L. Ananda, Li-Shiuan Peh

CountMe!- Low Cost Crowd Counting using Audio Tones

[ACM HotMobile Posters & Demo '12]

Pravein Govindan Kannan, Seshadri Padmanabha Venkatagiri, Mun Choon Chan, Akkhebbal L. Ananda, Li-Shiuan Peh

Dynamic lookahead mechanism for conserving power in multi-player mobile games

[IEEE INFOCOM '12]

Karthik Thirugnanam, Bhojan Anand, Jeena Sebastian, Pravein Govindan Kannan, Akkhebbal L. Ananda, Rajesh Krishna Balan, Mun Choon Chan

Adaptive Display Power Management for Mobile Games

[ACM Mobisys '11]

Bhojan Anand, Karthik Thirugnanam, Jeena Sebastien, Pravein Govindan Kannan, Akkhebbal L. Ananda, Mun Choon Chan and Rajesh Krishna Balan

## TEACHING EXPERIENCE

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CS5229 - Advanced Computer Networks (Semester 2016/17, 2017/18)

CS3103 - Computer Networking Practice (Semester 2015/16, 2016/17)

## SKILLS

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LANGUAGES: C, C++, Java, Python, Rust, P4, C#, .NET, SQL, DHTML, XML.

PLATFORMS: Linux, ONL(Open Networking Linux), IOS-XR(Cisco), Tofino, Netronome (NFP), Intel DPDK, UEFI BIOS, Android.