Rajdeep Das

PERSONAL INFORMATION

PhD Student
Computer Science and Engineering
UC San Diego

webpage: http://www.sysnet.ucsd.edu/~r4das
e-mail: r4das@ucsd.edu

RESEARCH INTERESTS

Programmable Networking, Datacenter Networking

EDUCATION

PhD / Computer Science and Engineering
University of California San Diego 2017 - present

M.Tech / Computer Science and Engineering
Indian Institute of Technology Kanpur 2013 - 2015

B.Tech / Information Technology
West Bengal University of Technology 2009 - 2013

High School / Indian School Certificate
Council for the Indian School Certificate Examinations 2009

PUBLICATIONS

Rajdeep Das and Alex C. Snoeren. "Enabling Active Networking on RMT Hardware". ACM Hotnets, 2020 (to appear)

William M. Mellette, Rajdeep Das, Yibo Guo, Rob McGuinness, Alex C. Snoeren, George Porter. "Expanding across time to deliver bandwidth efficiency and low latency". Usenix NSDI, 2020

Arjun Roy, Rajdeep Das, Hongyi Zeng, Jasmeet Bagga, Alex C. Snoeren. "Understanding the Limits of Passive Realtime Datacenter Fault Detection and Localization". IEEE/ACM Transactions on Networking, 2020

Rajdeep Das, Nimantha Baranasuriya, Venkat Padmanabhan, Christoffer Rodbro, Seth Gilbert. "Informed Bandwidth Adaptation in Wi-Fi Networks using Ping-Pair". ACM CoNext, 2017

Sagar Parihar, Ziyaan Dadachanji, Praveen Kumar Singh, Rajdeep Das, Amey Karkare, Arnab Bhattacharya. "Automatic Grading and Feedback using Program Repair for Introductory Programming Courses". ACM ITICSE, 2017

Junchen Jiang, Rajdeep Das, Ganesh Ananthanarayanan, Philip A. Chou, Venkata Padmanabhan, Vyas Sekar, Esbjorn Dominique, Marcin Goliszewski, Dalibor Kukoleca, Renat Vafin, Hui Zhang. "VIA: Improving Internet Telephony Call Quality Using Predictive Relay Selection". ACM SIGCOMM, 2016

PATENTS

Philip Andrew Chou, Venkata N Padmanabhan, Rajdeep Das, Ganesh Ananthanarayanan, Junchen Jiang. "Data-driven network path selection". US Patent App. 15/169,429, 2017

PROFESSIONAL EXPERIENCE

Microsoft Research India / Research Fellow Bangalore (India), August 2015 - August 2017
Mobility, Networks and Systems Research Group

Via - Mapping the network performance between a cluster of network endpoints (such as autonomous systems) using data collected from Skype calls. This was then used to predict the quality of future calls or alternative paths that could lead to better call quality. Ran simulations and built a real-world prototype. Also built a web-based 3D visualization tool to aid in the understanding of this approach.

Kwikr - Improving bandwidth adaptation for real-time streaming applications such as Skype running over Wi-Fi networks. Built detectors for congestion, handoffs and link-strength-change at the WiFi access point. The congestion detector involved our novel ping-pair technique which estimates the queueing delay at the wireless access point. Integrated Kwikr into Skype for Android consumer production clients which we used to evaluate our approach on millions of Skype consumers.

Multipath in Real-Time Streaming - Evaluating the benefits of using multipath in real-time streaming applications. Built a WebRTC based experimental framework which we used to collect data from users located at different parts of the world. Analyzed data to understand cause of call drops and simulated potential benefits of using multipath.

PriceWaterhouseCoopers / Intern Kolkata (India), June 2012 - August 2012
Assessing web applications for security vulnerabilities and recommending fixes for them. Vulnerabilities tested for include attacks such as cross-site-scripting, injection, session hijacking, sensitive data leakage, cross-site-request-forgery, insecure direct object references and unvalidated forwards/redirects.

Master's Thesis

A Tutoring System for Introductory Programming
Developed a software system for teaching introductory programming (Prutor). Prutor is a distributed system for managing a programming course. It exports a web interface that students can use to solve programming problems and receive feedback on syntactic/semantic errors. Prutor can trace the evolution of student programs to aid in understanding of the student's approach while solving the programming problem. The system helps improve interactivity between students and tutors/TAs. Data collected using Prutor has been used to develop a lot of tools which aid in computer science education and has led to publications in major conferences. Prutor is now the standard for teaching introductory programming at IIT Kanpur and has also been deployed at IIT Bombay and IIT Goa to conduct introductory programming courses. The Best Software Award at IIT Kanpur was received for Prutor.

Awards & Achievements

Best Software Award 2015
Indian Institute of Technology Kanpur