MD I. ISLAM

PhD Candidate, Computer Science

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EDUCATION

Kent State University

PhD in Computer Science

Aug 2013 – Dec 2021 Kent, OH

- Research area: Router dataplane algorithms; High-level Synthesis

Bangladesh University of Engineering and Technology (BUET)

Bachelors in Computer Science and Engineering

Aug 2003 – Dec 2008 Dhaka, Bangladesh

TECHNICAL SKILLS

C | C++ | Router Dataplane Algorithms | High-Level Synthesis | Linux Kernel

PROJECTS

CP-Trie: Routing Table Lookup in Software and ASIC

- Developed several bitmap based Trie (CP-Trie, Poptrie and SAIL) for IPv6 routing table lookup algorithms in C and ASIC.
- Evaluated the algorithms with routes from real core routers.

C2RTL: A High-level Synthesis tool

- Developed a high-level synthesis tool, C2RTL that can generate synthesizable Verilog RTL for pipelined ASIC from C code.
- It was designed as a GCC plugin. It takes intermediate code (produced by GCC) as an input and generates control and data-flow graph (CDFG) for that. It then performs scheduling and MUX tree generation before producing the Verilog code.

NC-TCP: Router assisted congestion control

- Developed several router assisted congestion control (XCP, RCP and NC-TCP) in Linux kernel.
- Evaluated the protocols using Mininet and a GStreamer based video streaming application.

PUBLICATIONS

- MD Iftakharul Islam, Javed I Khan "CP-Trie: Cumulative Pop-Count based Trie for IPv6 Routing Table Lookup in Software and ASIC." IEEE HPSR, 2021.
- MD Iftakharul Islam, Javed I Khan "C2RTL: A High-level Synthesis System for IP Lookup and Packet Classification." IEEE HPSR, 2021.
- MD Iftakharul Islam, Javed I Khan "SAIL Based FIB Lookup in a Programmable Pipeline Based Linux Router." IEEE HPSR, 2019.
- MD Iftakharul Islam, Javed I Khan "Leveraging Domino to Implement RCP in a Stateful Programmable Pipeline." IEEE HPSR, 2019.
- MD Iftakharul Islam, Javed I Khan "A Network-centric TCP for Interactive Video Delivery Networks (VDN)." IEEE ICNP Workshop PVE-SDN, 2017.

EXPERIENCE

Graduate Assistant

Kent State University

Sep 2013 – Present Kent, OH

- Develop routing table lookup algorithms (C)
- Develop a high-level synthesis tool (C).
- Develop a router-centric congestion control (C, Linux kernel).
- Teaching Data Structures, Design Patterns and Object Oriented Programming (C++).

Software Engineer - Intern

inConatact

May 2015 – Aug 2015 Columbus, OH

- Develop a call center simulation platform (C#).

Software Engineer - Intern

RightRez

May 2014 – Aug 2014 Bloomington, IN

- Develop a flight search (A* and bidirectional search) in a graph of 3 million flights (C#).

Senior Software Engineer

GenWeb2

Sep 2012 – Jul 2013 Dhaka, Bangladesh

- Develop a 3D CNC machine simulator (C++)

Software Engineer

KB Group

Apr 2010 – Sep 2011 Dhaka, Bangladesh

- Develop ticketing systems for box offices (C#).

Software Engineer

Arista Enterprises

Apr 2009 – Mar 2010 Dhaka, Bangladesh

- Develop an airline ticket booking system (C#).

Software Engineer

SDSL

Feb 2008 – Mar 2009 Dhaka, Bangladesh

- Develop a map navigator for AfriGIS map (C#)

PEER REVIEW

- IEEE Transaction of Networking
- IEEE Journal of Selected Area in Networking
- Journal of Parallel and Distributed Computing