MD I. ISLAM

PhD, Computer Science

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EDUCATION

Kent State University
PhD in Computer Science

📅 Aug 2013 – Aug 2022   📍 Kent, OH

- Research area: High-level Synthesis; Network Algorithms

Bangladesh University of Engineering and Technology (BUET)
Bachelors in Computer Science and Engineering

📅 Aug 2003 – Dec 2008   📍 Dhaka, Bangladesh

TECHNICAL SKILLS

`C` `C++` `High-Level Synthesis` `Network Algorithms` `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

Software Engineer 3
Juniper Networks

📅 Jan 2022 – Present   📍 Sunnyvale, CA

- Working on packet filters for Juniper Express ASIC (C++).

Graduate Assistant
Kent State University

📅 Sep 2013 – Dec 2022   📍 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 (C#).

Senior Software Engineer
GenWeb2

📅 Sep 2012 – Jul 2013   📍 Dhaka, Bangladesh

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

Software Engineer
KB Group

📅 Apr 2010 – Sep 2011   📍 Dhaka, Bangladesh

- Develop ticketing systems for theaters (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#)