MD Islam (Tamim)

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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

BUET
Bachelors in Computer Science and Engineering

Aug 2003 – Dec 2008 | Dhaka, Bangladesh

TECHNICAL SKILLS

C++ | C | High-Level Synthesis | Network Algorithms | Linux Kernel

RESEARCH INTERESTS

Hardware/software co-design for accelerators | High-Level Synthesis | Network Algorithms

PROJECTS

C2RTL: A High-Level Synthesis tool

- Developed a high-level synthesis tool named 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.
- Evaluated the generated Verilog code with OpenROAD

CP-Trie: A Longest Prefix Match algorithm in Software and ASIC

- Developed several bitmap and Trie based longest prefix match algorithms such as (CP-Trie, Poptrie and SAIL) for IPv6 routing table lookup.
- Evaluated the algorithms with routes from real core routers.

NC-TCP: A congestion control in Linux kernel

- 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.

SELECTED PUBLICATIONS

- 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 "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 "A Network-centric TCP for Interactive Video Delivery Networks (VDN)." IEEE ICNP Workshop PVE-SDN, 2017.

WORK EXPERIENCE

Software Engineer 3
Juniper Networks

Jan 2022 – Present | Sunnyvale, CA

- Working on packet classification (e.g. prefix match, range match, TCAM match, etc) software of Juniper Express ASIC. (C++).

Graduate Assistant
Kent State University

Sep 2013-Dec 2022 | Kent, OH

- Taught Design Patterns and Object Oriented Programming in C++.

Software Engineer – Intern
inConatact

May 2015-Aug 2015 | Columbus, OH

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

Software Engineer - Intern
RightRez

May 2014-Aug 2014 | Bloomington, IN

- Developed a flight search algorithm (C#).

Senior Software Engineer
GenWeb2

Sep 2012 – Jul 2013 | Dhaka, Bangladesh

- Developed a 3D simulator of CNC machines (C++)

Software Engineer
KB Group

Apr 2010 - Sep 2011 | Dhaka, Bangladesh

- Developed ticketing systems for theaters (C++).

Software Engineer
Arista Enterprises

Apr 2009–Mar 2010 | Dhaka, Bangladesh

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

Software Engineer
SDSL

Feb 2008–Mar 2009 | Dhaka, Bangladesh

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