

Ajay Brahmakshatriya

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Graduate Student
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Education

September'18-Present	Ph.D. in Computer Science, Massachusetts Institute of Technology	5.0/5.0
August'12-June'16	B.Tech in Computer Science(Honors), IIT Hyderabad Runner up to the President's Gold medal	9.74/10

Interests

Programming languages, Compiler and Systems research

Publications

PLDI'20	Universal Graph Framework: Achieving High-Performance across Algorithms, Graph Types, and Architectures (<i>Under submission</i>)
CGO'20	PriorityGraph: A Unified Programming Model for Optimizing Ordered Graph Algorithms
IISWC'19	BHive: A Benchmark Suite and Measurement Framework for Validating x86-64 Basic Block Performance Models
EUROSYS'19	ConfLLVM: A Compiler for Enforcing Data Confidentiality in Low-Level Code
GLOBECOM'16	LWIR: LTE-WLAN Integration at RLC Layer with Virtual WLAN Scheduler for Efficient Aggregation

Work Experience

July'16-July'18	Research Fellow, Microsoft Research India, Bangalore
May'15-July'15	Intern, Software Development Engineer, Amazon India, Bangalore

Research Projects

September'18-Present	A Unified Graph Framework for Achieving High-Performance across Algorithms, Graph Types, and Architectures
Advisor	Prof. Saman Amarasinghe, Prof. Julian Shun Generating efficient CUDA code for graph algorithms. New GraphIR for portable code generation across multiple platforms.
January'19-Present	BuildIt: A type based multi-stage programming language extension for imperative languages
Advisor	Prof. Saman Amarasinghe A type based multi-stage programming library for imperative languages like C++
July'16-July'18	An Instrumenting Compiler for Enforcing Confidentiality in Low-Level Code
Advisor	Dr. Akash Lal, Senior Researcher, MSR India

Memory partitioning and instrumentation techniques for preventing leak of confidential data in low level languages in presence of active attackers.

August'15-January'16 **LWIR: LTE-WLAN Integration at RLC Layer with Virtual WLAN Scheduler for Efficient Aggregation**

Advisor **Dr. Bheemarjuna Reddy Tamma, Professor, CSE department, IIT Hyderabad**
Tunneling LTE RLC frames over WiFi channel for increased throughput with a scheduling algorithm that reduced waiting time and out of order delivery

Skill Set

Programming X86/64 Assembly, C, C++
Tools LLVM

Academic Achievements and Experiences

- Runner up to the President's Gold medal including all departments of BTech 2016.
- Awarded the academic excellence award for 2014, 2016 during BTech.

Extra-Curriculars

- Winner of Microsoft CTF competitions - Hackon(Winner) and Build the shield(Runner up)
- Creatives core for Elan 2015 and Web Coordinator for Elan 2014, the Cultural and Technical festival of IIT Hyderabad.
- Core member of KLUDGE and INFERO, the hacking and programming clubs of IIT Hyderabad for the year 2013-2014.

Hobby Projects

- emu-NES - An X64 JIT emulator for Nintendo Entertainment System (MOS6502 processor) with efficient PPU rendering.
- Some of my projects are hosted at <https://github.com/AjayBrahmakshatriya>