Tri Minh Nguyen

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EDUCATION	**Princeton University**, Princeton, NJ, USA

Candidate, Doctor of Philosophy (Ph.D.) in Electrical Engineering   Sep 2012 – Present
Adviser: Professor David Wentzlaff

Master of Arts (M.A.) in Electrical Engineering   Sep 2012 – May 2014
Thesis: Inter-cacheline compression to reduce bandwidth requirement in manycore architecture
Cumulative GPA: 3.76 / 4.00

University of Texas at Austin, Austin, TX, USA
Bachelor of Science (B.S.) in Electrical and Computer Engineering   Sep 2008 – May 2012
Graduated with High Honors.
Cumulative GPA: 3.93 / 4.00

RESEARCH INTERESTS & EXPERTISE

Interests: manycore/throughput-oriented/parallel architecture, domain-specific accelerator, bandwidth-efficient algorithms, scalable algorithms and architecture

Skills: architectural simulation, performance modeling, C/C++/11, Python, Java, Verilog

RESEARCH EXPERIENCE

Princeton University
Research Assistant   Sep 2012 – Present
- Investigating the memory bandwidth starvation problem in future manycores and throughput-oriented architectures (Tilera/GPUs/Xeon Phi), and designing possible architectural or algorithmic solutions.
- PITON: Princeton 25-core manycore processor.
Designing the cache system, cache-coherence protocol, debug-port through JTAG. Verifying the design with low-level assembly tests. Synthesizing design with industrial tools (Synopsys) and taping out at 1GHz clock speed.
Advisor: Professor David Wentzlaff

University of Texas at Austin
Research Assistant   Sep 2011 – May 2012
- Investigating the feasibility of FPGA as an accelerator for expedited drug discovery and simulation. Profiling GPGPU workloads using similarity matrices.
Advisor: Professor VJ Reddi

PUBLICATIONS

Tri Nguyen, and David Wentzlaff, "*MORC: Manycore-oriented Cache Compression,*" in *MICRO'15*

Yaosheng Fu, **Tri Nguyen**, and David Wentzlaff, "*Coherence Domain Restriction on Massive Scale Systems,*" in *MICRO'15*

Michael McKeown, Yaosheng Fu, **Tri Nguyen**, Yanqi Zhou, Jonathan Balkind, Alexey Lavrov, Mohammad Shahrad, Samuel Payne, Xiaohua Liang, Matthew Matl, and David Wentzlaff "*OpenPiton: An Open Source Manycore Research Framework,*" in *ASPLOS'16*

Michael McKeown, Yaosheng Fu, **Tri Nguyen**, Yanqi Zhou, Jonathan Balkind, Alexey Lavrov, Mohammad Shahrad, Samuel Payne, and David Wentzlaff "*Piton: A 25-core Academic Manycore Processor,*" in *HotChips'16*

WORK EXPERIENCE

AMD Research, Boxborough, MA, USA
Research Intern   Jun 2016 – Sep 2016
Implementing state-of-the-art hardware compression module for memory link compression. Evaluating on-chip data movement energy with and without data compression in the context of super-computing software, and using the results to devise novel energy efficient compression algorithm.
Supervisor: Greg Sadowski

NVIDIA, Santa Clara, CA, USA

Intern   May 2012 – Aug 2012

Writing interface software to extract voltage readings from on-die oscilloscope. Analyzing transient voltage noise as a potential cause of failures in GPU. Writing GPU assembly tests to diagnose cause of failures. Improving noise virus testing suite to increase coverage of faulty units and decrease test duration.
Supervisor: Apoorv Gupta

Samsung, Suwon, South Korea

Intern   May 2011 – Aug 2011

Evaluating content-based chunking and delta-encoding as a data deduplication technique for SSDs.
Supervisor: Kyungho Kim

TEACHING EXPERIENCE	**Princeton ELE301 – Design of Real Systems**

Assistant Instructor   Sep 2013 – Jan 2014

Designing lab assignments for the first six weeks of the course. Leading weekly lab sessions. The labs involve Android programming and interfacing with micro-controller.

UT Austin – Probability and Random Processes

University Tutor   Sep 2011 – Jan 2012

Working for the university's free tutoring program.

HONORS & AWARDS

Student Travel Grant, ASPLOS'16   Jun 2016
Amount: $600, ACM's support.

Student Travel Grant, ISCA'15   Jun 2015
Amount: $230, ACM's support.

Student Travel Grant, ISCA'14   Jun 2014
Amount: $250, NSF's support.

University Honors, University of Texas at Austin   2008 – 2012

Third place, final project   Dec 2010
EE345L, Embedded Systems Design, UT Austin
Microcontroller-VGA interface demonstrating ping-pong game and spinning 3D hexagon.

First place, final project   Dec 2009
EE319K, Intro to Embedded Systems, UT Austin
Best AI for tank simulation competition.

ACTIVITIES

Eta Kappu Nu Honors Society, UT Austin   Sep 2010 – May 2012
Member

Study abroad, Sungkyunkwan University, South Korea   Jan 2011 – Jun 2011

Shotokai Karate Club, UT Austin   Sep 2008 – May 2010
Member then vice-president

REFERENCES

Professor David Wentzlaff
Assistant Professor, Princeton University
wentzlaf@princeton.edu

Professor VJ Reddi
Assistant Professor, University of Texas at Austin
vj@ece.utexas.edu

Greg Sadowski
Principal Technical Staff, AMD
gregsad@amd.com

Apoorv Gupta
Senior System Software Manager, NVIDIA
appugetsmail@gmail.com

Kyungho Kim
Principal Engineer, Samsung Semiconductor
kyungho21.kim@samsung.com

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