

Tri Minh Nguyen

1010 Massachusetts Avenue, APT 34, Cambridge, MA 02138, USA

trin.nguyen@hms.harvard.edu • +1 (512) 203-1481 • <http://www.linkedin.com/in/trivoldus28/> • <http://trin.host>

EDUCATION	Princeton University , Princeton, NJ, USA	Sep 2012 – Present
	Candidate, Doctor of Philosophy (Ph.D.) in Electrical Engineering Master of Arts (M.A.) in Electrical Engineering Adviser: Professor David Wentzlaff	
	University of Texas at Austin , Austin, TX, USA	Sep 2008 – May 2012
	Bachelor of Science (B.S.) in Electrical and Computer Engineering Graduated with High Honors. Cumulative GPA: 3.93 / 4.00	
RESEARCH INTERESTS & EXPERTISE	Interests: neuroscience, neuromorphic computing, throughput-oriented computer architecture, deep learning (DNN/CNN/LSTM) Skills: architectural simulation, RTL design, Android dev, deep learning frameworks. Programming fluency: C, C++ 11, Python, Verilog, Java	
RESEARCH EXPERIENCE	Harvard Medical School	Sep 2012 – Sep 2018
	<i>Post-doctoral Research Associate</i> - Investigating the biological neural network implemented in the cerebellum using electron microscope (EM) imaging that reconstructs the brain (the connectome) at the nanometer scale (4nm resolution). Understanding how this specific wiring can lead to novel ML techniques, such as one-shot learning. <i>PI: Professor Wei-Chung Lee</i>	
	Princeton University	Sep 2012 – Sep 2018
	<i>Research Assistant</i> - Bandwidth compression: Investigating bandwidth starvation in throughput-oriented architectures (e.g., GPUs/Xeon Phi) and solutions including cache compression, link compression, HBM, and efficient memory layout. - NVM: Studied nonvolatile memory as a DRAM replacement and novel high performance crash consistency. - OpenPITON open-source processor: Designed the cache system, cache-coherence protocol, network-on-chip protocol, and JTAG debug-port for PITON, a 25-core academic manycore processor. Verified the design with directed and randomized assembly tests. Synthesized the design with industrial tools (Synopsys) and taped out in IBM 32nm process. http://parallel.princeton.edu/piton/ - PRIME open-source simulator: key developer of PRIME, a fast, distributed parallel, scalable manycore simulator. https://github.com/PrincetonUniversity/primesim <i>Advisor: Professor David Wentzlaff</i>	
	University of Texas at Austin	Sep 2011 – May 2012
	<i>Research Assistant</i> - Hardware accelerator: Conducted a feasibility study of accelerating drug discovery using FPGA, through studying molecular dynamic (MD) algorithm and analyzing the integer/floating point performance of state-of-the-art FPGAs. - GPU: Identify and optimize GPU workloads with dynamic compilation through similarity matrices. <i>Advisor: Professor VJ Reddi</i>	
SELECTED PUBLICATIONS	Tri Nguyen , and David Wentzlaff, “PiCL: a Software-Transparent, Persistent Cache Log for Nonvolatile Main Memory,” <i>MICRO’18</i> Tri Nguyen , Adi Fuchs, and David Wentzlaff, “CABLE: Cache-based Link Compression for Manycore Architectures,” <i>MICRO’18</i> Tri Nguyen , and David Wentzlaff, “MORC: Manycore-oriented Cache Compression,” <i>MICRO’15</i> Yaosheng Fu, Tri Nguyen , and David Wentzlaff, “Coherence Domain Restriction on Massive Scale Systems,” in <i>MICRO’15</i> Michael McKeown, Yaosheng Fu, Tri Nguyen , Yanqi Zhou, Jonathan Balkind, Alexey Lavrov, Mohammad Shahradd, Samuel Payne, Xiaohua Liang, Matthew Matl, and David Wentzlaff “OpenPiton: An Open Source Manycore Research Framework,” in <i>ASPLOS’16</i>	

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

NVIDIA Research, Redmond, WA, USA

Jun 2017 – Sep 2017

Research Intern

Investigated and characterized the performance of cutting-edge GPU DNN machine learning algorithms including CNN and LSTM. Devised architectural improvements for future GPUs beyond Volta. Characterized GPU performance as a shared virtual GPU in the cloud. Contributed to the development of the internal GPU simulator widely used in company.

Manager: David Nellans

AMD Research, Boxborough, MA, USA

Jun 2016 – Sep 2016

Research Intern

Implemented state-of-the-art hardware compression algorithm for super-computing workloads and evaluated energy savings at the RTL/gate-level. Submitted a patent on a novel compression algorithm specifically designed to reduce data movement energy.

Manager: Greg Sadowski

NVIDIA, Santa Clara, CA, USA

May 2012 – Aug 2012

Intern

Wrote on-die oscilloscope extraction software for quality assurance and used it to analyze transient voltage noise as a cause of failures. Wrote and improved noise virus testing suite to increase fault coverage decrease test time.

Manager: Apoorv Gupta

Samsung, Suwon, South Korea

May 2011 – Aug 2011

Intern

Investigated the feasibility and benefits of data compression for solid-state drives (SSD), including gzip/DEFLATE, and with fixed block-based compression, and using fingerprinting for variable block-size compression.

Manager: Kyungho Kim

TEACHING EXPERIENCE

Princeton ELE301 – Design of Real Systems

Fall 2013 & Fall 2017

Assistant Instructor

Developed lab assignments for a new course at university. Led weekly lab sessions and designed Android-to-microcontroller interfacing labs.

UT Austin – Probability and Random Processes

Sep 2011 – Jan 2012

University Tutor

Instructor for the university’s free tutoring program.

HONORS & AWARDS

Student Travel Grant, MICRO’17, ASPLOS’16, ISCA’15, ISCA’14

Supports from ACM, NSF, SIGMICRO, and others.

University Honors, University of Texas at Austin

2008 – 2012

Third place, Final Project

Dec 2010

EE345L, Embedded Systems Design, UT Austin

Microcontroller as a gaming device with impressive 3D capability

First place in tank simulation AI competition.

Dec 2009

EE319K, Intro to Embedded Systems, UT Austin

ACTIVITIES

Princeton EE Musical MelodEE,

Mar 2017

Organizer

Eta Kappa Nu Honors Society, UT Austin

Sep 2010 – May 2012

Member

Shotokai Karate Club, UT Austin

Sep 2008 – May 2010

Member then vice-president

Last updated: January 2019