

Cuong Kim Chau

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EDUCATION

Ph.D., Computer Science

The University of Texas at Austin, TX, USA
Advisor: Dr. Warren A. Hunt, Jr.
GPA: 3.93/4.0

Aug 2013 – present

M.S., Computer Science

The University of Texas at Austin, TX, USA
Advisor: Dr. Raymond J. Mooney
GPA: 3.93/4.0

Aug 2011 – Aug 2013

B.Eng., Computer Science and Engineering

Ho Chi Minh City University of Technology, Vietnam
Advisor: Dr. Tru Hoang Cao
GPA: 8.76/10 (Honor program) Rank: 2/330

Sept 2004 – Jan 2009

RESEARCH EXPERIENCE

Formal verification of asynchronous circuits using ACL2

Sept 2015 – present

- Developing a hierarchical methodology for modeling and verifying the functional correctness of asynchronous circuits using the ACL2-based DE system.
- Formally specified and verified the correctness of the FM9001 microprocessor design using the ACL2-based DE system.

Advisor: Dr. Warren A. Hunt, Jr.

Developing a new method for effectively breaking symmetries in SAT encodings of graph-related problems

Sept 2015 – Jan 2016

Advisor: Dr. Marijn Heule

Non-standard analysis in ACL2(r)

Nov 2014 – Sept 2015

- Formalized the Fourier coefficient formulas of periodic functions, the inner product of two Fourier series, and the sum rule for definite integrals of infinite series using non-standard analysis in ACL2(r).

Advisors: Dr. Warren A. Hunt, Jr., Dr. Matt Kaufmann, and Dr. Ruben Gamboa

Graduate research assistant for “Code Verification for Practical Machine Architectures” project, funded by DARPA CRASH

Sept 2013 – May 2015

- Restructured the physical-level memory model of our x86 ISA formal model, written in the logic of ACL2, from byte-addressable to doubleword-addressable.
- Established an infrastructure for extending our x86 ISA model so that the SIMD floating-point instructions can be added to the model.
- Implemented the SIMD floating-point instructions for our x86 ISA model.

Advisors: Dr. Warren A. Hunt, Jr. and Dr. Matt Kaufmann

Unifying first-order logic and probabilistic graphical models for natural language meaning representation and inference using Markov Logic Jun 2012 – Aug 2013
Advisor: Dr. Raymond Mooney

Member of the “Information Processing on Semantic Web and Applications” project, funded by Vietnam National University at Ho Chi Minh City (VNU-HCM) and World Bank Jan 2010 – Jun 2011
Advisor: Dr. Tru Cao

Member of the “Information Extraction and Integration on Vietnamese Semantic Web” project, a national university key project funded by VNU-HCM Sept 2007 – Dec 2009
Advisor: Dr. Tru Cao

INDUSTRIAL EXPERIENCE

Formal verification engineer intern at Centaur Technology, Inc. May 2015 – Aug 2015
- Worked on formal verification of floating-point multiplication implemented in the contemporary x86 microprocessor designed at Centaur.
Advisor: Dr. Anna Slobodova

Hardware engineer intern at Oracle May 2014 – Aug 2014
- Worked on formal verification of floating-point division and square root as implemented in the new UltraSPARC core.
Advisor: Dr. David L. Rager

PUBLICATIONS

Cuong Chau, Warren A. Hunt Jr., Matt Kaufmann, Marly Roncken, and Ivan Sutherland
Data-Loop-Free Self-Timed Circuit Verification
In the 24th IEEE International Symposium on Asynchronous Circuits and Systems ASYNC 2018, pp. 51-58, Vienna, Austria, May 2018.

Cuong Chau, Warren A. Hunt Jr., Marly Roncken, and Ivan Sutherland
A Framework for Asynchronous Circuit Modeling and Verification in ACL2
In the 13th Haifa Verification Conference HVC 2017, pp. 3-18, Haifa, Israel, November 2017.

Marly Roncken, Ivan Sutherland, Chris Chen, Yong Hei, Warren Hunt Jr., and **Cuong Chau**, with Swetha Mettala Gilla, Hoon Park, Xiaoyu Song, Anping He, and Hong Chen
How to Think about Self-Timed Systems
In the 51st IEEE Asilomar Conference on Signals, Systems, and Computers Asilomar 2017, pp. 1597-1604, Pacific Grove, CA, USA, October 2017.

David Rager, Jo Ebergen, Dmitry Nadezhin, Austin Lee, **Cuong Chau**, and Ben Selfridge
Formal Verification of Division and Square Root Implementations, an Oracle Report
In the 16th Conference on Formal Methods in Computer-Aided Design FMCAD 2016, pp. 149-152, Mountain View, CA, USA, October 2016.

Cuong Chau and Marijn Heule
Computing Maximum Unavoidable Subgraphs Using SAT Solvers
In the 19th International Conference on Theory and Applications of Satisfiability Testing
SAT 2016, pp. 196-211, Bordeaux, France, July 2016.

Cuong K. Chau, Matt Kaufmann, and Warren A. Hunt Jr.
Fourier Series Formalization in ACL2(r)
In the 13th International Workshop on the ACL2 Theorem Prover and Its Applications
ACL2 2015, pp. 35–51, Austin, TX, USA, October 2015.

Islam Beltagy, **Cuong Chau**, Gemma Boleda, Dan Garrette, Katrin Erk, Raymond Mooney
Montague Meets Markov: Deep Semantics with Probabilistic Logical Form
In the 2nd Joint Conference on Lexical and Computational Semantics
*SEM 2013, pp. 11-21, Atlanta, GA, USA, June 2013.

Tru H. Cao, Thao M. Tang, and **Cuong K. Chau**
Text Clustering with Named Entities: A Model, Experimentation and Realization
Book Chapter in Intelligent Systems Reference Library, 1, Volume 23, Data Mining:
Foundations and Intelligent Paradigms, pp. 267-287, Springer 2012.

Duong, V.T.T. and Cao, T.H. and **Chau, C.K.** and Quan, T.T.
Latent Ontological Feature Discovery for Text Clustering
In the 7th IEEE-RIVF Conference on Computing and Communication Technologies
RIVF 2009, pp. 264-271, Da Nang, Vietnam, July 2009.

HONORS AND AWARDS

Bruton Graduate School Fellowship - UT Austin	<i>Sept 2017</i>
Bruton Graduate School Fellowship - UT Austin	<i>Sept 2016</i>
Vietnam Education Foundation (VEF) 2011 Fellow	<i>Aug 2011 – Aug 2013</i>
Silver Medal achievement for ranking 2/330 graduates	<i>Apr 2009</i>

TEACHING EXPERIENCE

The University of Texas at Austin , Teaching Assistant	
• CS 350C: Advanced Computer Architecture	<i>Spring 2016</i>
• CS 429: Computer Organization & Architecture	<i>Fall 2014</i>
Ho Chi Minh City University of Technology , Instructor	
• Artificial Intelligence	<i>Spring 2011</i>
• Formal Languages and Automata	<i>Fall 2010</i>
• Data Structures and Algorithms	<i>Fall 2010</i>
Ho Chi Minh City University of Technology , Teaching Assistant	
• Artificial Intelligence	<i>Spring 2010</i>
• Programming Fundamentals	<i>Spring 2010</i>
• Principles of Programming Languages	<i>Fall 2009</i>
• Data Structures and Algorithms	<i>Fall 2009</i>

VOLUNTEER EXPERIENCE

Teaching Assistant for UTCS Hour of Code Outreach at Austin Achieve High School
(Dec 2016)