

Idris Hsi

Curriculum Vitae

College of Computing
Georgia Institute of Technology
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Research Interests

- **Software engineering** (program comprehension; requirements engineering; reverse engineering; software evolution; software design)
- **Human-Computer Interaction** (computing architectures; computing ecosystems; usefulness metrics)

Education

- **Georgia Institute of Technology, Ph.D. in Computer Science, May 2005 (expected)**
“Analyzing the Conceptual Integrity of Computing Applications Through Ontological Excavation”
Committee: **Dr. Colin Potts (adv)**, **Dr. Spencer Rugaber (adv)**, **Dr. Jim Foley**, **Dr. Leo Mark**.
Specialization: Software Engineering
Minor: Human-machine Systems
- **Georgia Institute of Technology, M.S. in Industrial Engineering, June 1995**
Major Area: Human-Machine Systems, Minor Area: Quality Control Systems
- **University of California, San Diego, B.S. in Cognitive Science, December 1992**
Concentration: Cognitive Engineering

Research Experience

- **Cognition and Learning in Interdisciplinary Laboratory Cultures**

Dr. Nancy Nersessian; College of Computing and Dr. Wendy Newstetter; Department of Biomedical Engineering, Principal Investigators, NSF Award REC0106773 and REC0411825, (01/2004 – present).

Studying the cognitive and learning practices that take place in both undergraduate and graduate research laboratories. Developed ethnographic method for tracking and characterizing knowledge elements in transcripts towards support of problem-based curriculum development for bioengineering.

- **Meso-Adaptation of Systems**

Dr. Melody Moore; Computer Information Systems Department at Georgia State University and Dr. Colin Potts; College of Computing, Principal Investigators, DARPA / DASADA Project, (01/2001 – 08/2003).

Analyzed and developed methods for the automated re-engineering of existing tools to fit different use contexts. Developed methods for ontological excavation and analysis.

- **Collaborative Games and Learning Environments**

with *Jochen Rick*, INCITE Project, (10/2002 – 12/2003).

Researched game theory and board game design. Developed a model of collaborative games to supplement existing game theoretic models for competitive and cooperative games. Identified design elements in collaborative board games that could be used in the development of learning environments.

- **Architectural Design Coordination Study**

Dr. Chuck Eastman; College of Architecture and Dr. Colin Potts; College of Computing, Principal Investigators, Center for Graphics, Visualization, and Usability Seed Grant, (01/1997 – 09/1997).

Helped conduct ethnographic study of architects at Portman and Associates. Observed design and logistics coordination amongst multiple multi-national organizations collaborating on a skyscraper in Shanghai.

Conference Publications [Refereed]

- Idris Hsi, "Measuring the Conceptual Fitness of a Computing Application in a Computing Ecosystem", *Proceedings of the ACM Workshop on Interdisciplinary Software Engineering Research (WISER'04) at the 12 Annual Foundations of Software Engineering (FSE-12)*, November 5, 2004, pp. 27-36. (33% Acceptance Rate)
- Idris Hsi, Colin Potts, and Melody Moore, "Ontological Excavation: Unearthing the core concepts of the application", *Proceedings of Tenth Working Conference on Reverse Engineering 2003 (WCRE'03)*, November 13-16, 2003, pp. 345-352. (42% Acceptance Rate)
- Idris Hsi and Colin Potts, "Studying the Evolution and Enhancement of Software Features", *Proceedings of the International Conference of Software Maintenance 2000 (ICSM'00)*, October 11-14, 2000, *IEEE Press*, pp. 143-151. (Acceptance rate not available)
- Michael W. McCracken, Idris Hsi, Heather Richter, Robert Waters, and Laura Burkhart, "A Proposed Curriculum for an Undergraduate Software Engineering Degree", *CSEE&T 2000-13th Conference on Software Engineering Education and Training*, Austin, Texas, March 6-8, 2000. (Acceptance rate not available)

Journal Publications [Refereed]

- Colin Potts and Idris Hsi, "Abstraction and Context in Requirements Engineering: Toward a Synthesis", *Annals of Software Engineering*, 9: 1-39, 1997.

Technical Reports

- Chuck Eastman, Idris Hsi, and Colin Potts, "Coordination in Multi-Organization Creative Design Projects", *GVU Technical Report*, 98-36.
- Colin Potts and Idris Hsi, "Towards Integrating Rationalistic and Ecological Design Methods for Interactive Systems", *GVU Technical Report*, 95-27.

Other Documents

- Idris Hsi, *Analyzing the Conceptual Coherence of Computing Applications*, July 2004, PhD Proposal, http://www.cc.gatech.edu/~idris/FTPfiles/Idris_Hsi_Proposal.pdf
- Idris Hsi, *Advice for Beginning Your PhD Career*, August 2003, http://www.cc.gatech.edu/~idris/AcademicInfo/Advice_Beginning_PhD_Career.htm
- Idris Hsi, *Surviving the Qualifiers*, July 1998, <http://www.cc.gatech.edu/gsc/qual-advice.html>

Under Review

- Idris Hsi, "Analyzing the Conceptual Integrity of Computing Applications Through Ontological Excavation", PhD Thesis, expected February 2005.
- Idris Hsi, "Ontological Excavation: A Procedures Manual", *Technical Report*, Georgia Institute of Technology, Dec 2004.

- Heather Richter, Chris Miller, Idris Hsi, and Gregory D. Abowd, "An Empirical Investigation of Capture and Access for Software Requirements Activities", to be submitted to *Graphics Interface 2005*, December 2004.
- Jochen Rick and Idris Hsi (Rick is 60%, Hsi is 40%), "We Shall Be Hobbits: Beyond the Competitive Mindset", November 5, 2003. Submitted to *Journal of the Learning Sciences*. In revision. Describes how game theory and models of collaborative behavior can be used to aid the design of learning environments.

Invited Talks

- Computer Information Systems Group, Georgia State University, April 18, 2001, *Studying the Evolution and Enhancement of Features*.

Talks

- SPARC Luncheon, Georgia Institute of Technology, November 15, 2004, *Correlating the Conceptual Coherence and Usefulness of Computing Applications*.
- Foundations of Software Engineering-12 – November 2, 2004, Student Research Forum, *Measuring the Conceptual Integrity of Computing Applications through Ontological Excavation*.
- Cognitive Science Brown Bag, Georgia Institute of Technology – October 15, 2004, *Bridging the Gap Between Cognitive and Software Engineering through the Metaphor of the Computing Ecosystem*.
- CS7001 PhD Orientation, Georgia Institute of Technology – September 15, 2004, August 27, 2003, *A Practical Introduction to Getting started in the PhD Program*.
- SPARC Luncheon, Georgia Institute of Technology, January 27, 2003, *Analyzing Software 'Bloat' Using Ontological Excavation*.
- Software Engineering Forum, Georgia Institute of Technology, September 9, 2001, *How Do We Know If We're Building The Right Stuff?*
- Graphics, Visualization, and Usability Center Brown Bag, Georgia Institute of Technology, September 7, 2000, *The Evolution of Computing*.

Courses Taught

- *Graduate Teaching Assistant Workshop* (CS8011GTA), College of Computing, Georgia Institute of Technology
 - 08/2000 – 12/2000, Instructor (63 students)
 - 09/1999 – 12/1999, Instructor (65 students)
 - 09/1998 – 12/1998, Co-taught with Dr. Kurt Eiselt (45 students)
 - 09/1997 – 12/1997, Co-taught with Dr. Kurt Eiselt (34 students)

Developed and taught course for training graduate teaching assistants at the College of Computing. Course included sessions such as job requirements, grading heuristics, educational theory, unusual situations, and course postmortems.

- *Introduction to Programming* (CS1302), College of Computing, Georgia Institute of Technology – Head TA – Fall 1996 – Winter 1997
 - 01/1997 – 03/1997 (35 TAs, 204 students)
 - 09/1996 – 12/1996 (27 TAs, 225 students)

Supervised staff of undergraduate teaching assistants in syllabus creation, design of assessment materials, and grading. Helped to design administrative infrastructure for organizing teaching assistants into development and recitation teams and the class logistics that allowed the course to support large populations of students in later years.

- *Design of Human-Machine System* (ISyE 4009), School of Industrial and Systems Engineering
 - 06/1994 – 08/1994 (36 students)

Taught course on human-computer interaction as part of the industrial engineering curriculum with an emphasis on cognitive science and human-machine and safety-critical systems.

Courses Supported

Graduate Teaching Assistant, College of Computing, Georgia Institute of Technology

- *Software Generation, Test, and Maintenance* (CS6360) – (06/2004-08/2004) – Dr. Spencer Rugaber. Course covers modern techniques for software development including application generators, feature-oriented development, and refactoring.
- *Software Development Processes* (CS6300) – (08/2003 –12/2003) – Dr. Mary Jean Harrold (33 students). Graduate software engineering course covering processes and techniques in software system development.
- *Software Engineering Processes* (CS 4320) – (04/2000-06/2000) – Dr. Colin Potts. Undergraduate software engineering course.
- *Software Engineering Project Management* (CS4301) – (04/1999 – 06/1999) – Mike McCracken and Allison Tew. Covers the organization, operation, and management of software projects.
- *Computers in Society* (CS 4001) – (06/1999 – 09/1999), (06/2000 – 09/2000) – Dr. Phil Enslow – course fulfills the Georgia Tech ethics requirement and discusses issues such as privacy, security, patents, and productivity. Designed assignments and other assessment material.
- *Introduction to Programming* (CS1302) – Various Instructors – (06/1995 – 08/1996). Required course for all Georgia Tech engineering, computing, and architecture students.

Graduate Teaching Assistant, School of Industrial and Systems Engineering, Georgia Institute of Technology

- *Design of Human Machine Systems* (ISyE 4009) – Christine Mitchell (section A), Alex Kirlik (section B) – (01/1995 – 03/1995). Industrial engineering course teaching human-computer interaction with a systems emphasis.
- *Design of Human Machine Systems* (ISyE 4009) – Jennifer Turns – (04/1994 – 06/1994). Industrial engineering course teaching human-computer interaction with a systems emphasis.

Students Advised

- Angela Williams – College of Computing Summer Research Internship Program – (06/2000 – 09/2000)

Awards

- Outstanding Graduate Teaching Assistant, College of Computing (1997)

Service and Volunteer Activities

- *Workshop on Knowledge Oriented Maintenance 2004*, Program Committee Member (2004)
- *Faculty Recruiting Committee*, Student Representative (2000)
- *Awards and Honors Committee*, Student Representative (1999)
- *Working Conference on Reverse Engineering (WCRE'99)*, Student Volunteer (1999)
- *Foundations of Software Engineering (FSE'98)*, Student Volunteer (1998)
- *Virtual String Quartet*, College of Computing, Co-Founder (1994-1999)
- *16th Annual Conference of the Cognitive Science Society*, Student Volunteer (1994)

Memberships

- INCITE – Institute of Nebulous, Collaborative Intelligent Thought Evolution – Founding Member (2002-present)
- ACM including SIGCHI, SIGSOFT (since 1996)
- IEEE Computer Society (since 1997)

Work Experience

- Internship - Scientific Research Corporation (Atlanta, GA, Summer 1996) – Programmer and ISO 9000 Certification effort

References

Colin Potts

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