

# Tsz-Chiu Au

ADDRESS: Department of Computer Science  
A.V. Williams Building  
University of Maryland  
College Park, MD 20742, U.S.A.  
HOME PAGE: <http://www.cs.umd.edu/~chiu>

E-MAIL: [chiu@cs.umd.edu](mailto:chiu@cs.umd.edu)  
TEL: +1 (301) 405-2716  
+1 (240) 643-7544  
US VISA: F1 and eligible for H1B  
CITIZENSHIP: Hong Kong, China

## RESEARCH INTEREST AND EXPERIENCE

Artificial intelligent planning, multi-agent systems, case-based reasoning, computer game playing, and problem solving by searching. Specifically, error detection in multi-agent systems, opponent modeling, planning with volatile external information, planning under uncertainty, and Hierarchical Task Network (HTN) planning.

## EDUCATION

Ph.D., Computer Science (expected graduation date: May 2008)  
University of Maryland, College Park, Maryland, U.S.A.  
**Dissertation:** Synthesis of Strategies from Interaction Traces for Noisy Multi-Agent Environments  
**Adviser:** Prof. Dana Nau

M.S., Computer Science, May 2002  
University of Maryland, College Park, Maryland, U.S.A.  
**Courses of Interest:** Artificial Intelligence Planning, Human Factors in Computer and Information Systems, Program Analysis and Understanding, Sampling Theory, etc.  
**Scholarly Paper:** Conditions of Efficient Plan Reuse: An Analysis  
**Adviser:** Prof. Dana Nau

B.Eng. (*First Class Honors*), Computer Science, June 1997  
Hong Kong University of Science and Technology, Hong Kong, China.  
**Final Year Project:** A Distributed Software Development Platform for Internet Programs  
**Adviser:** Prof. Shing-Chi Cheung

## RESEARCH EXPERIENCE

September 2001 - present

**Research Assistant**, University of Maryland, College Park, MD, U.S.A.  
Worked on research projects on case-based planning, planning in multi-agent environment, planning under uncertainty, and the Iterated Prisoner's Dilemma, under the guidance of Prof. Dana Nau. Participated in the development of SHOP2, a domain-independent automated-planning system based on Hierarchical Task Network (HTN) planning. SHOP2 won one of the top four prizes at the 2002 International Planning Competition.

June 1997 - August 1997

**Student Helper**, Research Center, Hong Kong Government, Hong Kong  
Developed software modules for the Wind Monitoring System (WMS) for Tsing Ma Bridge in Hong Kong. Performed unit testing on the WMS.

**TEACHING EXPERIENCE**

September 2000 - May 2001

**Teaching Assistant**, Department of Computer Science, University of Maryland, College Park.

Assisted teaching in two courses: Introduction to C programming (Fall 2000) and Organization of Programming Languages (Spring 2001).

January 2000 - May 2000

**Instructional Assistant**, Department of Information and Systems Management, Hong Kong University of Science and Technology.

Assisted teaching in courses on internet application development and Java programming.

September 1997 - June 1999

**Teaching Assistant**, Department of Computer Science, Hong Kong University of Science and Technology.

Assisted teaching in courses on design and analysis of algorithms, computer organization, and computer architecture.

**BOOK CHAPTER**

1. T.-C. Au and D. Nau. Is it Accidental or Intentional? A Symbolic Approach to the Noisy Iterated Prisoner's Dilemma. *The Iterated Prisoners' Dilemma: 20 Years on*, pp.231–262, World Scientific, 2007.

**JOURNAL PAPERS**

1. D. Nau, T.-C. Au, O. Ilghami, U. Kuter, H. Muñoz-Avila, J. W. Murdock, D. Wu, and F. Yaman. Applications of SHOP and SHOP2. *IEEE Intelligent Systems*, 20:2, pp.34–41, 2005.
2. D. Nau, T.-C. Au, O. Ilghami, U. Kuter, J. W. Murdock, D. Wu, and F. Yaman. SHOP2: An HTN planning system. *Journal of Artificial Intelligence Research* 20:379-404, December 2003.

**REFEREED CONFERENCE PUBLICATIONS**

1. T.-C. Au, S. Kraus, and D. Nau. Synthesis of Strategies from Interaction Traces. *Proceedings of the Seventh International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS'08)*, May 2008. To appear.
2. T.-C. Au. Dynamic Programming with Stochastic Opponent Models in Social Games. *First International Conference on Computational Cultural Dynamics (ICCD-2007)*, August 2007.
3. T.-C. Au, S. Kraus, and D. Nau. Symbolic noise detection in the noisy iterated chicken game and the noisy iterated battle of the sexes. *First International Conference on Computational Cultural Dynamics (ICCD-2007)*, August 2007.
4. T.-C. Au and D. Nau. Reactive Query Policies: A Formalism for Planning with Volatile External Information. *IEEE Symposium on Computational Intelligence and Data Mining (CIDM)*, pp. 243-250, 2007.

5. T.-C. Au and D. Nau. The Incompleteness of Planning with Volatile External Information. *Proceedings of the European Conference on Artificial Intelligence (ECAI)*, August 2006.
6. T.-C. Au and D. Nau. Maintaining Cooperation in Noisy Environments. *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI-06)*, NECTAR paper, pp.1561-1564, July 2006.
7. T.-C. Au and D. Nau. Accident or Intention: That is the Question (in the Noisy Iterated Prisoner's Dilemma). *Proceedings of the Fifth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS'06)*, pp. 561-568, May 2006.
8. T.-C. Au, U. Kuter and D. Nau. Web Service Composition with Volatile Information. *Proceedings of the 4th International Semantic Web Conference (ISWC-2005)*, pp. 52-66, 2005.
9. T.-C. Au, D. Nau, and V. Subrahmanian. Utilizing volatile external information during planning. *Proceedings of the European Conference on Artificial Intelligence (ECAI)*, pp. 647-651, August 2004.
10. T.-C. Au, H. Muñoz-Avila, and D. S. Nau. On the complexity of plan adaptation by derivational analogy in a universal classical planning framework. *Proceedings of the European Conference on Case-Based Reasoning (ECCBR)*, pp. 13-27, September 4-7 2002.

## OTHER PUBLICATIONS

T.-C. Au. Guidelines of Online Help Design, E-mail Help Methods and Online Customer Service for Website Developers. *Principles and strategies for practitioners designing universally usable sites*, 2000. <http://www.otal.umd.edu/uupractice/help>.

## TALKS

*Accident or Intention: That is the Question (in the Noisy Iterated Prisoner's Dilemma)*, Dean's Fellow Lecture Series, Department of Computer Science, University of Maryland, College Park, September 2007.

*Dynamic Programming with Stochastic Opponent Models in Social Games*, First International Conference on Computational Cultural Dynamics, August 2007.

*Symbolic noise detection in the noisy iterated chicken game and the noisy iterated battle of the sexes*, First International Conference on Computational Cultural Dynamics, August 2007.

*Reactive Query Policies: A Formalism for Planning with Volatile External Information*, IEEE Symposium on Computational Intelligence and Data Mining, April 2007.

*Accident or Intention: That is the Question (in the Noisy Iterated Prisoner's Dilemma)*, The Fifth International Joint Conference on Autonomous Agents and Multiagent Systems, May 2006.

*Utilizing volatile external information during planning*, European Conference on Artificial Intelligence, August 2004.

## **HONORS AND AWARDS**

Dean's Fellowship Award, Department of Computer Science, University of Maryland, College Park (2007–2008).

Third-place among the 165 entrants in the 20th Anniversary Iterated Prisoner's Dilemma Competition's "Noise" category. Best performer among programs that had no "slave" programs feeding points to them. (2005)

Best Research Paper Award for the paper "On the complexity of plan adaptation by derivational analogy in a universal classical planning framework" with Héctor Muñoz-Avila and Dana Nau. (2002)

Graduate Fellowship, University of Maryland, College Park (2000–2002).

First-Class Honors, Department of Computer Science, HKUST (1997).

Second-place in ACM Hong Kong Scholastic Programming Contest in 1997.

Sixth-place in ACM International Collegiate Programming Contest Asia Regional Contest, Taiwan. (1996)

Kwong On Bank Scholarship (1995)

Kiangsu-Chekiang College Scholarship (1992)

## **COMPUTER SKILLS**

Proficient in Java, C/C++, Perl, Lisp, MATLAB programming, OCaml, ML, and Unix shell script. Familiar with AspectJ, Javascript, SQL, Object Pascal, UNIX System and Windows systems.

## **LANGUAGE SKILLS**

Proficient in English and Chinese (Cantonese and Mandarin).