Curriculum Vitae of Tsz-Chiu Au

ADDRESS: Department of Computer Science and Engineering
Ulsan National Institute of Science and Technology
Room 701-6, Building 106, 50 UNIST-gil
Ulsan 44919, Republic of Korea

E-MAIL: chiu@unist.ac.kr
chiu.au@gmail.com

PHONE: +82 52-217-2138

HOMEPAGE: https://chiuau.github.io

EDUCATION

Doctor of Philosophy, Computer Science, August 2008
University of Maryland, College Park, Maryland, U.S.A.
Dissertation: *Synthesis of Strategies for Non-Zero-Sum Repeated Games*
Thesis committee: Dana Nau (chair), Sarit Kraus, P.S. Krishnaprasad, Atif Memon, James Reggia, V.S. Subrahmanian
Adviser: Prof. Dana Nau

Master of Science, Computer Science, May 2002
University of Maryland, College Park, Maryland, U.S.A.
Scholarly Paper: *Conditions of Efficient Plan Reuse: An Analysis*
Adviser: Prof. Dana Nau

Bachelor of Engineering (*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

APPOINTMENTS

March 2019 - present
Associate Professor, Ulsan National Institute of Science and Technology, South Korea.
Founded the Agents and Robotic Transportation Lab, which focuses on artificial intelligence, robotics, and transportation research.

August 2012 - February 2019
Assistant Professor, Ulsan National Institute of Science and Technology, South Korea.
Founded the Agents and Robotic Transportation Lab, which focuses on artificial intelligence, robotics, and transportation research.

October 2008 - July 2012
Postdoctoral Fellow, The University of Texas at Austin, TX, U.S.A.
Worked on research projects on autonomous vehicle and traffic management under the supervision of Prof. Peter Stone. Developed a software package called AIM4, a traffic simulator for autonomous traffic control. Developed a web application for prediction market research.

September 2001 - August 2008
Research Assistant, University of Maryland, College Park, MD, U.S.A.
Conducted research on case-based planning, planning in multi-agent environments, 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.

June 1997 - August 1997
Student Programmer, Research Center, HKUST, 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

August 2012 - present

Instructor, Ulsan National Institute of Science and Technology. Taught the following undergraduate and graduate courses:

- **Artificial Intelligence**. Fall 2013, Spring 2014, Fall 2015, Fall 2016, Spring 2017, Spring 2018, Spring 2020, Fall 2021, Fall 2022.
- **Artificial Intelligence Programming II (i.e., Python, TensorFlow, and Keras)**. Fall 2020, Fall 2021.
- **Machine Learning**. Fall 2020.
- **Deep Learning (Graduate Course)**. Fall 2018.
- **Introduction to Robotics**. Spring 2021.
- **Autonomous Robots (Graduate Course)**. Fall 2013, Fall 2014, Fall 2015, Spring 2016, Fall 2017, Spring 2020, Spring 2021, Fall 2022, Fall 2023.
- **Data Structures**. Fall 2016, Fall 2017, Spring 2018.
- **Engineering Programming I (i.e., C++ Programming)**. Fall 2012, Spring 2013, Spring 2014, Spring 2015.
- **Introduction to Computer Science and Engineering (co-teaching)**. Fall 2020, Fall 2021, Fall 2022.
- **Software System Design**. Fall 2012.
- **Special Topics on Web Technology**. Fall 2023.
- **Bio & Disaster Data Analysis through High-Performance Machine Learning (Graduate Course) (co-teaching)**. Spring 2018.

September 2000 - May 2001

Teaching Assistant, Department of Computer Science, University of Maryland, College Park. Assisted teaching in two courses:

- **Organization of Programming Languages**. Spring 2001.
- **Introduction to C programming**. Fall 2000.

January 2000 - May 2000

Instructional Assistant, Department of Information and Systems Management, Hong Kong University of Science and Technology. Assisted teaching in two courses:

- **Internet Application Development**. Spring 2000.
- **Java Programming**. Spring 2000.

September 1997 - June 1999

Teaching Assistant, Department of Computer Science, Hong Kong University of Science and Technology. Assisted teaching in four courses:

- **Design and Analysis of Algorithms**. Spring 1998, Spring 1999.
- **Computer Organization**. Fall 1997.
- **Computer Architecture**. Fall 1998

ADVISING

- **Minhyuk Park**, Ulsan National Institute of Science and Technology. M.S./Ph.D.
  Master's thesis: To be determined

- **Jaebak Hwang**, Ulsan National Institute of Science and Technology. Ph.D.
  Doctoral thesis: To be determined
- **Thuy Nguyen Bui**, Ulsan National Institute of Science and Technology. M.S.
  Master's thesis: To be determined
- **Dohee Lee**, Ulsan National Institute of Science and Technology, 2022. Ph.D.
  Doctoral thesis: Improving Robot Team's Performance by Passing Objects between Robots
- **Jaebak Hwang**, Ulsan National Institute of Science and Technology, 2021. M.S.
  Master's thesis: Calibrating Traffic Models and Optimizing Agents in Robocup Rescue Simulation using Reinforcement Learning.
- **Sangwoo Ha**, Ulsan National Institute of Science and Technology, 2019. M.S.
  Master's thesis: Predicting the Location of Injured People in Disaster Zones using Deep Learning.
- **Dung Nguyen**, Ulsan National Institute of Science and Technology, 2018. M.S.
  Master's thesis: Fail-Safe Planning in Autonomous Systems.
- **Ty V. Nguyen**, Ulsan National Institute of Science and Technology, 2016. M.S.
  Master's thesis: Vehicle Dynamics Modeling and Motion Planning with Predictable Timing and Velocity.
- **Shun Zhang**, The University of Texas at Austin, 2012. M.S.
  Master's thesis: Semi-Autonomous Intersection Management.
- **Neda Shahidi**, The University of Texas at Austin, 2010. M.S.
  Master's thesis: A Response Delayed Policy for Autonomous Intersection Management.

PROFESSIONAL ACTIVITIES

- **Editorial board:**
  - Associate Editor, *IEEE Robotics and Automation Letters (RA-L)*, 2022–now.
  - Associate Editor, *IEEE International Conference on Robotics and Automation (ICRA)*, 2022, 2023, 2024.
- **Technical committee:**
  - *Co-chair of the IEEE Robotics and Automation Society Technical Committee on Algorithms for Planning and Control of Robot Motion*, 2019–now.
  - *Committee member for IEEE ICRA Best Unmanned Aerial Vehicle Paper Award*, 2021.
- **Guest Editor:**
  - *Special Issue on Multi-Robot Systems, IEEE Intelligent Systems Magazine*, 2017.
- **Journal article reviewer:**
  - *IEEE Robotics and Automation Letters (RA-L)*, 2018, 2019, 2020, 2021, 2022.
  - *IEEE Transactions on Robotics (T-RO)*, 2011.
  - *Robotics and Autonomous Systems (RAS)*, 2012.
  - *Intelligent Service Robotics (JIST)*, 2019, 2020, 2021.
  - *Artificial Intelligence (AIJ)*, 2012, 2014, 2017.
  - *Journal of Artificial Intelligence Research (JAIR)*, 2011, 2014.
  - *ACM Transactions on Intelligent Systems and Technology (TIST)*, 2012.

  - *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, 2012, 2014.
  - *International Journal of Artificial Intelligence & Applications (IJAIA)*, 2012, 2013.
  - *IEEE Transactions on Intelligent Transportation Systems*, 2014, 2015, 2016, 2017.
  - *Journal of Advanced Transportation*, 2014, 2015.
  - *Journal of Transportation Engineering*, 2013.
  - *Theory and Decision*, 2008, 2009, 2010, 2012, 2013, 2014.
  - *The Knowledge Engineering Review*, 2012.
  - *Central European Journal of Operations Research*, 2012.
  - *IEEE Transactions on Systems, Man, and Cybernetics (T-SMC)*, 2011.
  - *Simulation Modelling: Practice and Theory*, 2016.
  - *Networks*, 2020.

- **Conference program committee board:**
  - *International Joint Conference on Artificial Intelligence (IJCAI)*, 2021, 2022, 2023.

- **Conference senior program committee member:**
  - *International Joint Conference on Artificial Intelligence (IJCAI)*, 2018, 2019, 2020, 2021
  - *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, 2019.

- **Conference program committee member:**
  - *The AAAI Conference on Artificial Intelligence (AAAI)*, 2014, 2016, 2017, 2020, 2022, 2023, 2024.
  - *The AAAI Conference on Artificial Intelligence (AAAI)*, Computational Sustainability and AI Track, 2011, 2012, 2013, 2014.
  - *Autonomous Agents and Multiagent Systems (AAMAS)*, 2016.
  - *International Joint Conference on Artificial Intelligence (IJCAI)*, 2015, 2018, 2019, 2020, 2021, 2022, 2023.
  - *European Conference on Artificial Intelligence (ECAI)*, 2010, 2012, 2018.
  - *Artificial Intelligence and Application (AIA)*, 2012.
  - *International Conference on Autonomic and Autonomous Systems (ICAS)*, 2013, 2014, 2015, 2016.
  - *International Conference on Agents and Artificial Intelligence (ICAART)*, 2012, 2013, 2014, 2015, 2016.

- **Conference paper reviewer:**
  - *IEEE International Conference on Robotics and Automation (ICRA)*, 2011, 2013, 2014, 2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024.
  - *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021.
  - *Robotics: Science and Systems (RSS)*, 2021, 2022.
  - *The IEEE International Conference on Automation Science and Engineering (CASE)*, 2013, 2016.
  - *The AAAI Conference on Artificial Intelligence (AAAI)*, 2011, 2012, 2013, 2014, 2016, 2017, 2020, 2022, 2023, 2024.
  - *International Joint Conference on Artificial Intelligence (IJCAI)*, 2015, 2018, 2019, 2020, 2021, 2022, 2023.

  - *European Conference on Artificial Intelligence (ECAI)*, 2010, 2012.
  - *The International Conference on Ubiquitous Computing (Ubicomp)*, 2012.
  - *International Conference on Agents and Artificial Intelligence (ICAART)*, 2012, 2013, 2014, 2015, 2016.
  - *IEEE Conference on Intelligent Transportation Systems (ITSC)*, 2014, 2015, 2016, 2019, 2020.
  - *IEEE Intelligent Vehicles Symposium (IV)*, 2018.
  - *The Annual Meeting of Transportation Research Board (TRB)*, 2014.
  - *IEEE/SICE International Symposium on System Integration (SII)*, 2015.
  - *ACM SIGCAS Conference on Computing and Sustainable Societies (COMPASS)*, 2018.

- **Workshop Organizer:**
  - *ICRA workshop on "Machine Learning in Planning and Control of Robot Motion" (MLPC)*, 2018.

- **Workshop program committee member:**
  - *ICRA workshop on "Machine Learning in Planning and Control of Robot Motion" (MLPC)*, 2012, 2018, 2020.
  - *ICAPS workshop on "Combining Task and Motion Planning for Real-World Applications" (TAMPRA)*, 2012.

- **Workshop reviewer:**
  - *RSS workshop proposal*, 2016.
  - *Machine Learning in Planning and Control of Robot Motion Workshop (MLPC)*, 2014.

- **Book chapter reviewer:**
  - *Game Theoretic Analysis of Congestion, Safety and Security.* Springer. 2014.

- **Research grant proposal reviewer:**
  - *The Netherlands Organisation for Scientific Research (NWO)*, 2011.

- **Departmental and university service:**
  - Coordinator of the departmental seminar series, Ulsan National Institute of Science and Technology, 2020.
  - Coach of a team of undergraduate students who took part in the autonomous drone racing competitions in ADEX 2017 and IROS 2018.
  - Coordinator of the task force to support programming competitions, Ulsan National Institute of Science and Technology, 2017.
  - Hosted foreign students as summer interns through the SPIKE program and IAESTE, 2015, 2016, 2017, 2018.
  - Served as a judge in the e-ICON competition organized by APEC, 2016.
  - Guest Coach of Kazakhstan's national Olympiad team for International Olympiad in Informatics (IOI), Ulsan National Institute of Science and Technology, 2013.
  - Served as the thesis committee members for graduate students in the ECE/CSE/EE/ME departments at UNIST.
  - Supervised senior students' projects.
  - Organized lab tours for high school students and graduate applicants every year.

- Committee members in the Departmental Undergraduate and Education committee and the Space and Facilities Committee.
- Coordinator of the Dean's Fellow Lecture Series, Department of Computer Science, University of Maryland, College Park, 2008.

JOURNAL ARTICLES

*** indicates my role as the first author or one of the first authors. ** indicates my role as the corresponding author. The h-indexes or the h5-indexes of the journals or conferences and the number of citations were collected on October 15, 2023. Click on the numbers to visit the websites from which the data were collected.**

1. H. Moon, J. Martinez-Carranza, T. Cieslewski, M. Faessler, D. Falanga, A. Simovic, D. Scaramuzza, S. Li, M. Ozo, C. D. Wagter, G. d. Croon, S. Hwang, S. Jung, H. Shim, H. Kim, M. Park, **T.-C. Au**, G. Lee, and S. J. Kim. Autonomous Drone Racing: Challenges and Implemented Technologies. *Intelligent Service Robotics (JIST)*, 2019. (h-index: 35) (No. of Citations: 100)
2. D. Fajardo*, **T.-C. Au***, S. T. Waller, P. Stone, and D. Yang. Automated Intersection Control: Performance of a Future Innovation Versus Current Traffic Signal Control. In *Transportation Research Record : Journal of the Transportation Research Board*, 2259, pp. 223-232, 2012. (h-index: 141) (No. of Citations: 232)
3. 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. (h-index: 135) (No. of Citations: 223)
4. 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. (h-index: 127) (No. of Citations: 1420)

BOOK CHAPTERS

5. **T.-C. Au***, S. Zhang, and P. Stone. Autonomous Intersection Management for Semi-Autonomous Vehicles. *Handbook of Transportation*, Routledge, Taylor & Francis Group, 2015. (No. of Citations: 135)
6. **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. (No. of Citations: 11)

REFEREED CONFERENCE PUBLICATIONS UNDER REVIEW

7. **T.-C. Au***. Real-Time Pixel Formation Planning in Interactive Drone Light Shows. Submitted to *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, 2023. (h5-index: 119) (The top conference in robotics)
8. M. Park and **T.-C. Au****. Wind Field Modeling for Formation Planning in Multi-Drone Systems. Submitted to *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, 2023. (h5-index: 119) (The top conference in robotics)
9. **T.-C. Au***. —. Submitted to *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI)*, 2023. (h5-index: 212) (One of the top conferences in AI)

REFEREED CONFERENCE PUBLICATIONS

10. **T.-C. Au***. A Dynamic Programming Algorithm for Grid-based Formation Planning of Multiple Vehicles. *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2023. (h5-index: 78)

11. D. Lee, Q. Lu, and **T.-C. Au****. Dynamic Robot Chain Networks for Swarm Foraging. *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, 2022. (h5-index: 119) (No. of Citations: 3) (The top conference in robotics)

12. **T.-C. Au***. Extended Goal Recognition Design with First-Order Computation Tree Logic. *Proceedings of the 36th AAAI Con ference on Artificial Intelligence (AAAI)*, 2022. (h5-index: 212) (One of the top conferences in AI)

13. J. Hwang, S. Ko, and **T.-C. Au****. Calibrating Dynamic Traffic Assignment Models by Parallel Search using Active-CMA-ES. *Proceedings of IEEE International Conference on Intelligent Transportation (ITSC)*, 2021. (h5-index: 58)

14. **T.-C. Au***. Gridlock-free Autonomous Parking Lots for Autonomous Vehicles. *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2021. (h5-index: 78) (No. of Citations: 1)

15. D. Lee, Q. Lu, and **T.-C. Au****. Multiple-Place Swarm Foraging with Dynamic Robot Chains. *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, 2021. (h5-index: 119) (No. of Citations: 4) (The top conference in robotics)

16. D. Lee and **T.-C. Au****. Scheduling of Mobile Workstations for Overlapping Production Time and Delivery Time. *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2019. (h5-index: 78)

17. T. Nguyen and **T.-C. Au****. A Constant-Time Algorithm for Reachability of Arrival Times and Velocities. *Proceedings of the IEEE Intelligent Vehicles Symposium (IV)*, 2019. (h5-index: 58) (No. of Citations: 7)

18. J. Im, C. Yoo, D. Cho, K. Kim, J. Lee, D.-H. Cha and **T.-C. Au**. Deep learning-based monitoring and forecast of the intensity of tropical cyclones. *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS)*, 2019. (h5-index: 43)

19. T. Nguyen, D. Nguyen, and **T.-C. Au****. Learning of Vehicular Performance Models for Longitudinal Motion Planning to Satisfy Arrival Requirements. *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2017. (h5-index: 78)

20. T. Nguyen and **T.-C. Au****. Extending the Range of Delivery Drones by Exploratory Learning of Energy Models. *Proceedings of the International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2017. Short paper. (h-index: 59) (No. of Citations: 13)

21. D. Lee and **T.-C. Au****. Automatic Configuration of Mobile Conveyor Lines. *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, May 2016. (h5-index: 119) (No. of Citations: 5) (The top conference in robotics)

22. D. Lee and **T.-C. Au****. Virtual Safety Cages for Human-Robot Collaboration in Factories. *HCI Korea*. 2016.

23. D. Lee and **T.-C. Au****. Wearable Devices for Human-Robot Collaboration in Workplaces. *The 11th Korean Robotics Society Annual Conference*. 2016.

24. **T.-C. Au***, S. Zhang, and P. Stone. Semi-Autonomous Intersection Management. *Proceedings of the Thirteenth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2014. Short paper. (h-index: 59) (No. of Citations: 27)

25. **T.-C. Au***, C.-L. Fok, S. Vishwanath, C. Julien, and P. Stone. Evasion Planning for Autonomous Vehicles at Intersections. *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 1541-1546, October 2012. (h5-index: 78) (No. of Citations: 35)

26. C.-L. Fok, M. Hanna, S. Gee, **T.-C. Au**, P. Stone, C. Julien, and S. Vishwanath. A Platform for Evaluating Autonomous Intersection Management Policies. *Proceedings of ACM/IEEE Third International Conference on Cyber-Physical Systems (ICCPS)*, 2012. (h-index: 14) (No. of Citations: 67)

27. **T.-C. Au***, M. Quinlan, and P. Stone. Setpoint Scheduling for Autonomous Vehicle Controllers. *Proceedings of IEEE International Conference on Robotics and Automation (ICRA)*, 2012. (h5-index: 119) (No. of Citations: 35) (The top conference in robotics)

28. M. Hausknecht*, **T.-C. Au***, P. Stone, D. Fjardo, and S. T. Waller. Dynamic Lane Reversal in Autonomous Traffic Management. *Proceedings of IEEE Intelligent Transportation Systems Conference (ITSC)*, 2011. (h5-index: 58) (No. of Citations: 107)

29. M. Hausknecht*, **T.-C. Au***, and P. Stone. Autonomous Intersection Management: Multi-Intersection Optimization. *Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011. (h5-index: 78) (No. of Citations: 179)

30. **T.-C. Au***, N. Shahidi, and P. Stone. Enforcing Liveness in Autonomous Traffic Management. *Proceedings of the Twenty-Fifth Conference on Artificial Intelligence (AAAI)*, pp. 1317-1322, 2011. (h5-index: 212) (No. of Citations: 71) (One of the top conferences in AI)

31. N. Shahidi*, **T.-C. Au***, and P. Stone. Batch Reservations in Autonomous Intersection Management. *Proceedings of the Tenth International Joint Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, May 2011. Short paper. (h-index: 59) (No. of Citations: 19)

32. D. Fajardo*, **T.-C. Au***, S. T. Waller, P. Stone, and D. Yang. Automated Intersection Control: Performance of a Future Innovation Versus Current Traffic Signal Control. In *Transportation Research Board (TRB) 90th Annual Meeting*, 2011. (h5-index: 57) (No. of Citations: 232)

33. M. Quinlan*, **T.-C. Au***, J. Zhu, N. Stiurca, and P. Stone. Bringing Simulation to Life: A Mixed Reality Autonomous Intersection. *Proceedings of IROS 2010-IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2010. (h5-index: 78) (No. of Citations: 110)

34. **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)*, May 2008. (h-index: 59) (No. of Citations: 7)

35. **T.-C. Au***. Dynamic Programming with Stochastic Opponent Models in Social Games. *First International Conference on Computational Cultural Dynamics (ICCCD)*, pp 9-15. August 2007.

36. **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 (ICCCD)*, pp. 16-25, August 2007. (No. of Citations: 1)

37. **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. (h5-index: 16) (No. of Citations: 10)

38. **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. (h-index: 14) (No. of Citations: 11)

39. **T.-C. Au*** and D. Nau. Maintaining Cooperation in Noisy Environments. *Proceedings of the Twenty-First National Conference on Artificial Intelligence (AAAI)*, NECTAR paper, pp. 1561-1564, July 2006. (h5-index: 212) (No. of Citations: 3) (One of the top conferences in AI)

40. **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. (h-index: 59) (No. of Citations: 19)

41. **T.-C. Au***, U. Kuter and D. Nau. Web Service Composition with Volatile Information. *Proceedings of the 4th International Semantic Web Conference (ISWC)*, pp. 52-66, 2005. (h5-index: 25) (No. of Citations: 71)

42. **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. (h-index: 14) (No. of Citations: 13)

43. **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. Winner of Best Research Paper Award. (No. of Citations: 21) (ECCBR and ICCBR were merged into a single conference series in 2010)

REFEREED WORKSHOP PAPERS

44. M. Park and **T.-C. Au****. Challenges in Using Drone Swarms as Video Game Platforms. In Proceedings of Human Multi-Robot Interaction Workshop (HMRI) at IROS, 2023.

45. D. Nguyen and **T.-C. Au****. Learning to Generate Backup Paths in Cooperative Transportation of Human-Robot Teams. *ICRA Workshop on Robot Teammates Operating in Dynamic, Unstructured Environments (RT-DUNE)*, 2018.

46. T. Nguyen, D. Nguyen, and **T.-C. Au****. Vehicular Performance Modeling for Longitudinal Motion Planning to Satisfy Arrival Requirements. *ICRA Workshop on Machine Learning in Planning and Control of Robot Motion (MLPC)*, 2018.

47. **T.-C. Au*** and D. Lee. Graph-based Scheduling Algorithms for Mobile Workstations. *IJCAI Workshop on Autonomous Mobile Service Robots*, 2016.

48. T. Nguyen and **T.-C. Au****. Instance-based Learning of Vehicular Performance Models. *IROS Workshop on Machine Learning in Planning and Control of Robot Motion (MLPC)*, 2015.

49. **T.-C. Au*** and T. Nguyen. Augmented Motion Plans for Planning in Uncertain Terrains. *IJCAI International Workshop on Planning and Scheduling for Space (IWPSS)*, 2015. (No. of Citations: 1)

50. T. Nguyen and **T.-C. Au****. Dynamic Programming Approach for Motion Planning with Arrival Requirements. *ICRA Workshop on Optimal Robot Motion Planning (WORMP)*, 2015.

51. T. Nguyen and **T.-C. Au****. Motion Planning for Arrival Time and Velocity Requirements on Non-Homogeneous Terrains. *ICAPS Workshop on Planning and Robotics (PlanRob)*, 2015.

52. **T.-C. Au***, S. Zhang, and P. Stone. Intersection Management with Constraint-based Reservation Systems. *AAMAS 2014 Workshop on Autonomous Robots and Multirobot Systems (ARMS)*, 2014. (No. of Citations: 1)

53. **T.-C. Au*** and P. Stone. Motion Planning Algorithms for Autonomous Intersection Management. *AAAI 2010 Workshop on Bridging The Gap Between Task And Motion Planning (BTAMP)*, 2010.

54. **T.-C. Au***, M. Quinlan, N. Stiurca, J. Zhu, and P. Stone. Planning for Improving Throughput in Autonomous Intersection Management. *ICAPS'10 Workshop on Combining Action and Motion Planning*, 2010. (No. of Citations: 4)

55. **T.-C. Au**, U. Kuter, and D. S. Nau. Planning for interactions among autonomous agents. *International Workshop on Programming Multi-Agent Systems (ProMAS)*, 2009. (No. of Citations: 6)

PREPRINTS

56. **T.-C. Au***. Extending the Range of Drone-based Delivery Services by Exploration. *arXiv.* 2020. (No. of Citations: 1)

UNREFERED PUBLICATIONS

57. **T.-C. Au**, B. Banerjee, P. Dasgupta, and P. Stone. Multirobot Systems. *IEEE Intelligent Systems*, pp. 3-5. 2017.

58. **T.-C. Au***, N. Shahidi, and P. Stone. Improving Transportation Efficiency for Sustainable Society by Autonomous Traffic Management. *Sustainability at UT Austin 2011 Symposium*, The University of Texas at Austin. 2011.

59. **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.

60. **T.-C. Au***. An Analysis of Derived Belief Strategy's Performance in the 2005 Iterated Prisoner's Dilemma Competition. *Technical Report No. CS-TR-4756 / UMIACS-TR-2005-59.* University of Maryland, College Park. 2006. (No. of Citations: 4)

RESEARCH GRANTS

I have involved in the writing of 58 research grant proposals in South Korea and the United States since I was a postdoc. The following is the list of accepted proposals.

2022 - 2027

National Research Foundation (NRF), South Korea. "The Optimal Design of High-Density Parking Lots for Autonomous and Semi-Autonomous Vehicles." PI: Tsz-Chiu Au (100%).
Total Budget: 472,710,000 KRW (≈ 350,000 USD) My Budget: 472,710,000 KRW (≈ 350,000 USD)

2021 - 2022

Promoting AI Incubation Project, UNIST, South Korea. "Design of AI Companion to Empower Elderly: Communication Support & Medical Monitoring." PI: James Self. Co-PIs: Tsz-Chiu Au (50%).
Total Budget: 80,000,000 KRW (≈ 60,000 USD) My Budget: 40,000,000 KRW (≈ 30,000 USD)

2021

Ministry of Trade, Industry and Energy (MOTIE), South Korea. "Development of Self-Elevating Crane System for Installation and Maintenance of Onshore Wind Turbine System." PI: Power MnC Inc, South Korea. Accepted but later retracted due to the funding reduction.

2021

Promoting AI Incubation Project, UNIST, South Korea. "AI-based Crop Manipulation Systems for Vertical Farming." PIs: Tsz-Chiu Au (50%) and Seungjoon Yang. Accepted but later retracted due to the withdrawal of our industrial collaborator.

2018

National Information Society Agency (NIA), South Korea. "A System for Traffic Speed and Congestion Prediction in Ulsan." PI: Sungahn Ko. Co-PI: Tsz-Chiu Au (30%).
Total Budget: 180,000,000 KRW (≈158,000 USD) My Budget: 54,000,000 KRW (≈47,000USD)

2017

Discovering Outstanding Research Ideas Project, UNIST, South Korea. "Collaborative Augmented Reality Lab." PIs: Ian Oakley. Co-PI: Tsz-Chiu Au (14%).
Total Budget: 50,000,000 KRW (≈ 45,000 USD) My Budget: 14,000,000 KRW (≈ 13,000 USD)

2016 - 2021

Ultra-High Performance Computing Research Center, South Korea. "Software Development for Disaster Analysis using Machine Learning." This is part of a larger project called "Development of Ultra-high Performance Computer of PF Class." PIs: Sam H. Noh. Co-PI: Tsz-Chiu Au (28%).
Total Budget: 1,478,000,000 KRW (≈ 1,300,000 USD) My Budget: 416,000,000 KRW (≈ 364,000 USD)

2016 - 2022

National Research Foundation (NRF), South Korea. "Scheduling Algorithms for Robot Teams in Security Tasks." PI: Tsz-Chiu Au (100%).
Total Budget: 300,000,000 KRW (≈ 250,000 USD) My Budget: 300,000,000 KRW (≈ 250,000 USD)

2016

Future Innovative Research, UNIST, South Korea. "uGlass: Handheld Augmented Reality Devices." PIs: Youngwoo Park. Co-PI: Tsz-Chiu Au (14%).
Total Budget: 50,000,000 KRW (≈ 45,000 USD) My Budget: 14,000,000 KRW (≈ 13,000 USD)

2015 - 2016

Hyundai Next Generation Vehicle (Hyundai NGV), South Korea. "Hazard/Accident Prediction and Evasion System based on Big Data." PIs: Sungju Hwang. Co-PI: Tsz-Chiu Au (50%).
Total Budget: 30,000,000 KRW (≈ 26,000 USD) My Budget: 15,000,000 KRW (≈ 13,000 USD)

2015

Korea Institute of Science and Technology Information (KISTI), South Korea. "Research on Large-scale Computational Engineering and Large-scale Data Visualization Technology." PIs: The ECE department, UNIST. Co-PI: Tsz-Chiu Au (10%).
Total Budget: 154,545,455 KRW (≈140,000 USD) My Budget: 15,454,546 KRW (≈14,000USD)

2015

University Funded Project, UNIST, South Korea. "Natural Wearable Interfaces Research Group (nWIRG)." PIs: Ian Oakley. Co-PI: Tsz-Chiu Au (20%).
Total Budget: 170,000,000 KRW (≈155,000 USD) My Budget: 34,000,000 KRW (≈31,000USD)

2014

National Research Facilities & Equipment Center (NFEC), South Korea. "Mobile Robot for Object Manipulation in Outdoor Environments." PI: Tsz-Chiu Au (100%).
Total Budget: 281,709,600 KRW (≈ 250,000 USD) My Budget: 281,709,600 KRW (≈ 250,000 USD)

2014 - 2016

Knowledge Intensive Future 2030 (KniF), UNIST, South Korea. "Scheduling of Cooperative Telepresence Robot Team for Patrolling and Surveillance." PI: Tsz-Chiu Au (100%).
Total Budget: 90,000,000 KRW (≈ 82,000 USD) My Budget: 90,000,000 KRW (≈ 82,000 USD)

2012 - 2013

New Faculty Research Grant, UNIST, South Korea. "Facilitating Coalition Formation in Combinatorial Prediction Markets." PI: Tsz-Chiu Au (100%).
Total Budget: 100,000,000 KRW (≈90,000 USD) My Budget: 100,000,000 KRW (≈90,000USD)

INVITED TALKS

- "Smart Lifestyle in Smart Cities: How will AI change our daily life in the future?"
  World Science Culture Forum, South Korea, October 2022.
- "AI Technologies for Autonomous Drone Racing: Challenges and Applications"
  Workshop of the Korean Society for Aeronautical & Space Sciences (UAS Division), South Korea, August 2019.
- "The Shapes of Reachable Sets in Longitudinal Motion Planning"
  Computer Science Department, University of New Mexico, USA, June 2019.
- "Autonomous Traffic Management: Transportation Systems of the Future unleashed by Automated Driving and Connected Cars"
  Special Session on Automated Driving and Connected Cars, International Conference on ICT Convergence, South Korea, October 2016.
- "Autonomous Traffic Management: Transportation Systems of the Future"
  Seoul National University, South Korea, March 2016.
- "Autonomous Intersection Management"
  University of Athens, Greece, October 2015.
- "Autonomous Traffic Management: Transportation Systems of the Future"
  Bar-Ilan University, Israel, June 2015.
- "Utilizing Autonomous Vehicles to Improve Transportation Efficiency"
  University of Ulsan, South Korea, May 2015.
- "Autonomous Traffic Management: Transportation Systems of the Future"
  Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea, March 2015.
- "Autonomous Traffic Management: Transportation Systems of the Future"
  The Commonwealth Scientific and Industrial Research Organisation (CSIRO), Sydney, Australia, May 2013.
- "Noise Detection in Repeated Games"
  University of Ulsan, Department of Electrical Engineering Seminar, April 2013.
- "Control and Liveness in Autonomous Traffic Management"
  Hong Kong Baptist University, Department of Computer Science Seminar, February 2013.
- "Control and Liveness in Autonomous Traffic Management"
  University of Maryland, College Park, Department of Computer Science Seminar, October 2011.
- "Planning for Improving Throughput in Autonomous Intersection Management"
  The Chinese University of Hong Kong CSE Seminar, November 2010.
- "Planning for Improving Throughput in Autonomous Intersection Management"
  Hong Kong University of Science and Technology CSE Seminar, November 2010.
- Planning for Improving Throughput in Autonomous Intersection Management"
  The Hong Kong Polytechnic University, Department of Computing Seminar, November 2010.

- Improving Throughput by Planning in Autonomous Intersection Management"
  National Taiwan University CSIE Seminar, October 2010.
- Improving Throughput by Planning in Autonomous Intersection Management"
  Academia Sinica Institute of Information Science Seminar, Taiwan, October 2010.
- Noise Detection and Learning from Interaction Traces in Repeated Games"
  National Tsing Hua University Computer Science Department Seminar, October 2010.
- Synthesis of Strategies and Coping with Noise in Non-Zero-Sum Games"
  Hong Kong University of Science and Technology CSE Seminar, Feburary 2009.
- 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.

HONORS AND AWARDS

- **Fourth-place in IROS Autonomous Drone Racing Competition.** International Conference on Intelligent Robots and Systems. Team members: Haeryang Kim and Minhyuk Park. Coach: Tsz-Chiu Au. (2018)
- **NRF Research Grants (Young Investigator).** National Research Foundation of Korea. Akin to the National Science Foundation CAREER Award in the United States. (2016–2021)
- **Third-place in the Driverless Car Film Fest.** Driverless Car Summit. (2012)
- **Dean's Fellowship Award**, Department of Computer Science, University of Maryland, College Park. (2007–2008)
- **Third-place 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 in the European Conference on Case-Based Reasoning (ECCBR). (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.** (1997)
- **Kwong On Bank Scholarship.** (1995)
- **Kiangsu-Chekiang College Scholarship.** (1992)

SOFTWARE DEVELOPMENT

- SPICOMP: The Sampling-based Pixel Contingency Formation Planning Algorithm
  `https://github.com/chiuau/scicomp`
- A Dynamic Programming Algorithm for Grid-based Formation Planning of Multiple Vehicles
  `https://github.com/chiuau/multiplan`
- The Extended Goal Recognition Design (EGRD) Search Algorithm
  `https://github.com/chiuau/AAAI22-egrd`
- RoboCup Rescue Simulation with Deep Learning (joint work with Sungwoo Ha)
  `https://devswha.github.io/projects/intro`

- Tune Mixer (joint work with Temirlan Amangeldin)
  `https://chiuau.github.io/project/Tune_Mixer`
- Online Iterated Prisoner's Dilemma simulation (joint work with Thuy Nguyen Bui)
  `https://chiuau.github.io/project/Thuy_IPD`
- UTCS Gates Building Prediction Market (the website is curently defunct)
  `http://www.cs.utexas.edu/gbpm`
- The AIM4 Traffic Simulator
  `http://www.cs.utexas.edu/~aim`
- The Derived Belief Strategy (DBS) for the Noisy Iterated Prisoner's Dilemma
  `https://github.com/chiuau/DBS_for_NoisyIPD`
- The Simple Hierarchical Ordered Planner 2 (SHOP2) (I am one of the contributors, working under the guidance of Prof. Dana Nau)
  `https://www.cs.umd.edu/projects/shop`

PROGRAMMING SKILLS

Proficient in C++23, Python, Java, and Shell Scripts.

Familiar with Javascript, React, Ruby on Rails, OCaml, Common Lisp, Scheme, Perl, and MATLAB programming.

LANGUAGE SKILLS

Proficient in English and Chinese (Cantonese and Mandarin). Basic Korean language skills for surival in Korea.