

## Yu-Tsung Tai (戴濟琮)

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GitHub: <https://github.com/yuttai> HackerRank: <https://www.hackerrank.com/yuttai>

### EDUCATION

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**Indiana University Bloomington (IUB) (GPA: 3.802/4.0) 2010 – 2019**

- Ph.D. double-majoring in Mathematics and Computer Science June 2019
- Master of Science in Computer Science May 2016
- Master of Arts in Mathematics December 2012

**National Taiwan University (NTU) (GPA: 3.68/4.0) 2002 – 2006**

- Bachelor of Science in Mathematics (Rank: 4/48) June 2006

### PUBLICATIONS

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- [1] Y.-T. Tai, A. J. Hanson, G. Ortiz, and A. Sabry, “Quantum interval-valued probability: Contextuality and the Born rule,” *Phys. Rev. A*, [vol. 97, no. 5, p. 052121](#), May 2018.
- [2] A. J. Hanson, G. Ortiz, A. Sabry, and Y.-T. Tai, “Discrete Quantum Theories,” *J. Phys. A: Math. Theor.*, [vol. 47, p. 115305](#), 2014.
- [3] A. J. Hanson, G. Ortiz, A. Sabry, and Y.-T. Tai, “Geometry of Discrete Quantum Computing,” *J. Phys. A: Math. Theor.*, [vol. 46, p. 185301](#), 2013. Erratum “Corrigendum: Geometry of Discrete Quantum Computing,” *J. Phys. A: Math. Theor.*, [vol. 49, p. 039501](#), 12 2016.

### CONFERENCES AND SEMINARS

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#### Quantum Interval-Valued Probability: Contextuality and the Born Rule

- [Talk](#) in Interdisciplinary Logic Seminar, IUB August 2017
- Poster Session in Contextuality: Conceptual Issues, Operational Signatures, and Applications, Perimeter Institute for Theoretical Physics July 2017

#### Introduction to Discrete Quantum Theories and Computing

- [Talk](#) in Theory Seminar, Department of Computer Science, IUB March 2017

#### Real Computation

- [Talk](#) in Theory Reading Group, Department of Computer Science, IUB Feb 2016

## TEACHING EXPERIENCE

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### Taught with Full Responsibility

- MATH-T101 Mathematics for Elementary Teachers I, IUB Fall 2017
- MATH-M216 Calculus II (Online), Indiana University East Summer 2012

### Designed and Edited Online Courses, Data Science Program, IUB

- Introduction to C++ (Designer) Summer 2016 – Fall 2018
- Basic Linear Algebra and Calculus with Python (Designer) Summer 2017 – Spring 2018
- Machine Learning with Python (Editor) Fall 2016 – Spring 2018

### Taught Recitation Sessions, IUB

- MATH-M211 Calculus I Fall 2016
- MATH-M212 Calculus II Summer 2014, Fall 2014, Fall 2015
- CSCI-B501 Theory of Computing Spring 2015

### Assisted and Graded, IUB

- [CSCI-B609](#) Topics in Algorithms and Computing Theory (AlphaGo) Spring 2018
- INFO-I231 Introduction to the Mathematics of Cybersecurity Spring 2017
- CSCI-B503 Algorithms Design and Analysis Spring 2016
- MATH-M119 Brief Survey of Calculus I Fall 2013, Spring 2014
- MATH-M303 Linear Algebra for Undergraduates Spring 2013
- MATH-M118 Finite Mathematics Fall 2010, Fall 2012
- MATH-M301 Linear Algebra and Applications Spring 2012
- MATH-M365 Introduction to Probability and Statistics Fall 2011
- MATH-M120 Brief Survey of Calculus II Spring 2011
- MATH-S312 Honors Course in Calculus IV Spring 2011

### Taught Mini-Courses in NTU Math Camps

- There is No Formula for General Quintic Equations in Terms of Radicals 2005
- Game Theory 2004

## RESEARCH APPOINTMENTS

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- Research Assistant, Department of Computer Science, IUB July 2018 – Present
- Research Assistant, Kelley School of Business, IUB May 2016
- Research Assistant, Department of Computer Science, IUB Summer 2015
- Research Associate, Department of Computer Science, IUB Summer 2013
- Research Assistant, Department of Economics, NTU January 2008 – July 2009

## TECHNICAL SKILLS

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- Programming Languages:  
Python (with NumPy, matplotlib, SymPy, pandas, and TensorFlow), Mathematica, Visual Basic for Application, HTML, C/C++, L<sup>A</sup>T<sub>E</sub>X, MATLAB, Isabelle, Agda, Scheme, SQL
- Platforms:  
Microsoft Windows (7, 10, 8, XP, 98, 95, 3.1), Cygwin, Android, Red Hat Linux, MS-DOS 6.22
- Office Software:  
Microsoft Outlook, Microsoft PowerPoint, Microsoft Excel, Microsoft Word, Adobe Acrobat, Adobe Dreamweaver CC, Adobe Captivate 9, LyX, Google Docs, Google Sheets, emacs, Overleaf, Foxit Reader
- Version Control and Project Management:  
Git/GitHub, Apache Subversion, Agile, Trello, Slack
- Integrated Development Environments:  
Eclipse, PyCharm, Visual Studio 2013
- Fluency of Languages:  
Chinese (Native), English (Fluent), Japanese (Beginning), French Reading (Beginning)

## AWARDS AND HONORS

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- Studying Abroad Scholarship, Ministry of Education, Taiwan, R.O.C. 2010 – 2012
- Presidential Award, NTU Spring 2005, Fall 2005, Spring 2006
- Distinction Award, 1st Taiwan Mathematical Contest of Modeling for Undergraduate Students September 2003

## CLUB ACTIVITIES

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- Account Administrator of ptt2.cc 2006 – 2009
- NTU Go Club 2002 – 2006