

# Terrence W.K. MAK (麥偉強)

## Contact

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## Education

Oct 2014 – April 2018: Doctor of Philosophy, Australian National University & Data61 of CSIRO  
Nov 2015 – Sept 2016: Visiting Research Scholar, Department of IOE, University of Michigan  
Mar 2013 – Oct 2014: PhD Candidate, University of Melbourne & NICTA  
Sept 2009 – Aug 2011: M.Phil, Computer Science and Engineering, The Chinese University of Hong Kong  
Sept 2006 – July 2009: B.Sc. (1<sup>st</sup> Hon.), Computer Science, The Chinese University of Hong Kong

## Employment

Feb 2017 – now: Research Associate, Department of IOE, University of Michigan

- Grid Research for Good project (<https://gdg.engin.umich.edu/>), funded by ARPA-E
  - Develop new power system format (JSON) / Research software development (C++/python)
  - Power system benchmark analysis with RTE (France Transmission Operator) collaborations

Aug 2011 – Jan 2013: Junior research assistant & part-time teaching assistant, Chinese University of Hong Kong

- Research: Constraint programming / Distributed algorithms / Assisting research students
- Teaching: Introduction to Java programming and object-oriented programming

## Research Publication & Experience

### Working Journal Paper:

- Terrence W.K. Mak, Lyndon Shi, Pascal Van Hentenryck. Phase Transitions for Optimality Gaps in Optimal Power Flows.

### Journal Publication:

- Terrence W.K. Mak, Pascal Van Hentenryck, Anatoly Zlotnik, and Russell Bent. Dynamic Compressor Optimization in Natural Gas Transmission Systems, *INFORMS Journal on Computing*, *in press*, 2018.
- Arnaud Lallouet, Jimmy H.M. Lee, Terrence W.K. Mak, Justin Yip. Ultra-Weak Solutions and Consistency Enforcement in Minimax Weighted Constraint Satisfaction, *Constraints*, Volume 20, Issue 2, 109-154, April, 2015.

### Conference Publication:

- Terrence W.K. Mak, Lyndon Shi, Pascal Van Hentenryck. Phase Transitions for Optimality Gaps in Optimal Power Flows: A Study on the French Transmission Network, invited paper, *57th IEEE Conference on Decision and Control (CDC 2018)*, *under review*, Miami Beach, FL, U.S., Dec, 2018
- Terrence W.K. Mak, Pascal Van Hentenryck, Ian A. Hiskens. A Nonlinear Optimization Model for Transient Stable Line Switching, *IEEE American Control Conference 2017*, 2085-2092, Seattle, WA, U.S., May, 2017.
- Terrence W.K. Mak, Pascal Van Hentenryck, Anatoly Zlotnik, Hassan Hijazi, and Russell Bent. Efficient Dynamic Compressor Optimization in Natural Gas Transmission Systems, *IEEE American Control Conference 2016*, 7484-7491, Boston, MA, U.S., July, 2016.

- Hassan Hijazi, Terrence W.K. Mak, Pascal Van Hentenryck. Power System Restoration With Transient Stability, *AAAI'15*, 658-664, Austin, Texas, U.S., January, 2015
- Terrence W.K. Mak, Carleton Coffrin, Pascal Van Hentenryck, Ian A. Hiskens, and David Hill. Power System Restoration Planning with Standing Phase Angle and Voltage Difference Constraints, *PSCC'14*, Wroclaw, Poland, August, 2014
- Jimmy H.M. Lee, Terrence W.K. Mak, and Yuxiang Shi. A General Privacy Loss Aggregation Framework for Distributed Constraint Reasoning, *ICTAI'13*, 979-986, Washington DC, USA, November, 2013
- Patricia Gutierrez, Jimmy H.M. Lee, Ka Man Lei, Terrence W.K. Mak, and Pedro Meseguer. Maintaining Soft Arc Consistencies in BnB-ADOPT+ During Search, *CP'13*, 365-380, Uppsala, Sweden, September, 2013
- Jimmy H.M. Lee, and Terrence W.K. Mak. A Value Ordering Heuristic for Solving Ultra-Weak Solutions in Minimax Weighted CSPs, *ICTAI'12*, pages 17-24, Athens, Greece, November, 2012
- Arnaud Lallouet, Jimmy H.M. Lee, and Terrence W.K. Mak. Consistencies for Ultra-Weak Solutions in Minimax Weighted CSPs Using the Duality Principle, *CP'12*, pages 373-389, Québec City, Canada, October, 2012
- Jimmy H.M. Lee, Terrence W.K. Mak, and Justin Yip. Weighted Constraint Satisfaction Problems with Min-Max Quantifiers, *ICTAI'11*, pages 769-776, Florida, USA, November, 2011

**Research Collaboration:** CNLS, Los Alamos National Lab. Depart of EEE, University of Hong Kong.

**Teaching Assistant (2009 - 2011):**

Combinatorial Search and Optimization with Constraints (Fall 2009), Principles of Programming Languages (Spring 2010, Fall 2010, Spring 2011). Best Teaching Assistant Award (2010-2011).

**Optimization Tool Experience:**

Mixed-Integer Linear Programming: Gurobi/CPLEX      Nonlinear Programming: AMPL with Ipopt/Bonmin/Knitro  
 Constraint Programming: Minizinc, Gecode, IBM CP Optimizer, Toulbar 2

**Programming Language Experience:**

C/C++, Java, Python, Matlab script, Bash script, PHP, Fortran, COBOL, Smalltalk

**Scholarships**

Australian National University and NICTA CRL

- (PhD) NICTA APA & top-up award: Oct 2014 – Oct 2017

University of Melbourne and NICTA VRL

- (PhD) Melbourne International Research Scholarship (APA Award): Oct 2013 – Oct 2014
- (PhD) NICTA APA award: Mar 2013 – Oct 2013, NICTA top-up award: Oct 2013 – Oct 2014
- (PhD) Melbourne International Fee Remission Scholarship: Mar 2013 – Oct 2014

The Chinese University of Hong Kong

- (Undergraduate) HK Computer Society Scholarship 2008-09
- (Undergraduate) Mr. & Mrs. Chin F. Foin Memorial Scholarships

**English:** Fluent (IELTS: 7.0)    **Cantonese:** Native    **Mandarin Chinese:** Intermediate level