

# LIAM Y. HSIEH

Postdoctoral Researcher  
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## EDUCATIONS

- Ph.D., National Tsing Hua University**, Hsinchu, Taiwan 2014  
Industrial Engineering and Engineering Management  
Thesis: "Metamodel-based Frameworks for Stochastic Optimization"
- M.Sc., Chaoyang University of Technology**, Taichung, Taiwan 2005  
Industrial Management  
Thesis: "A Bargaining Agent with Bayesian Learning for an Online Used-Book Store"
- B.Sc., Feng Chia University**, Taichung, Taiwan 2003  
Industrial Engineering

## PROFESSIONAL EXPERIENCE

- Postdoctoral Researcher** 2015-present  
System Engineering & Operations Research Dept., George Mason University, VA, USA
- Senior Consultant** 2013-2015  
GiantSoft Inc., Hsinchu, Taiwan
- Supply Chain Management Consultant** 2012-2013  
AdvancedTEK International Corp., Shanghai, China
- Senior Engineer** 2007-2011  
Industrial Engineering, ProMOS Technologies, Taichung, Taiwan
- Engineer** 2006-2007  
Production Control, ProMOS Technologies, Taichung, Taiwan
- Supervisor** 2005-2006  
Manufacturing, ProMOS Technologies, Taichung, Taiwan

## HONORS AND AWARDS

- K.D. Tocher Medal** 2017  
(Operational Research Society)
- Senior Member** 2017  
(The Institute of Electrical and Electronics Engineers (IEEE))
- Award Recipient of Postdoctoral Research Abroad Program** 2014  
(Ministry of Science and Technology, Taiwan)
- Winner of Annual EIP competition** 2008  
(ProMOS Technologies, Taiwan)

## PEER-REVIEWED JOURNALS

- Robert Cuckler, Kuo-Hao Chang, [Liam Y. Hsieh](#) (2017), "Optimal Parallel Machine Allocation Problem in IC Packaging Using IC-PSO: An Empirical Study," *Asia-Pacific Journal of Operational Research* (Accepted).

- Liam Y. Hsieh, Edward Huang, Chun-Hung Chen (2017), "Equipment Utilization Enhancement in Photolithography Area Through a Dynamic System Control Using Multi-Fidelity Simulation Optimization with Big Data Technique," *IEEE Transactions on Semiconductor Manufacturing*, 30(2), 166-175.
- Jie Xu, Edward Huang, Liam Y. Hsieh, Loo Hay Lee, Chun-Hung Chen (2016), "Simulation Optimization in the New Era of Industrial 4.0 and Industrial Internet," *Journal of Simulation*, 10(4), 310-320.
- Liam Y. Hsieh, Edward Huang, Si Zhang, Kuo-Hao Chang, Chun-Hung Chen (2016), "Application of Multi-Fidelity Simulation Modeling to Integrated Circuit Packaging," *International Journal of Simulation and Process Modelling*, 11(3/4), 259-269.
- Kuo-Hao Chang, Liam Y. Hsieh (2016), "Determination of Wafer Start Mix in Semiconductor Manufacturing during New Technology Ramp-Up: Model, Solution Method and an Empirical Study," *IEEE Transactions on Systems, Man and Cybernetics: Systems*, 46(2), 294-302.
- Liam Y. Hsieh, Kuo-Hao Chang, Chen-Fu Chien (2014), "Efficient Development of Cycle Time of Normal Lots-Percentage of Hot Lots Response Surfaces Using Progressive Simulation Metamodeling," *International Journal of Production Research*, 52(10), 3097-3109.
- Liam Y. Hsieh, Kuo-Hao Chang (2013), "Yield Improvement on In-mold Decoration Manufacturing through Parameter Optimization," *International Journal of Precision Engineering and Manufacturing*, 14(10), 1823-1828.
- Chi-Bing Cheng, Chu-Chai Henry Chan, and Yueh-Feng Hsieh (2007), "Performance Enhancement of Bayesian Learning: An Application Involving the Bargaining Agent of an Online Bookstore," *Journal of the Chinese Institute of Industrial Engineers*, 24(5), 388-396.

#### **CONFERENCE PAPERS**

- Ying-Hsuan Lu, Kuo-Hao Chang, Liam Y. Hsieh (2017), "Large-Scale Quantile-based Simulation Optimization Using Efficient Factor Screenings," *4th International Conference on Advances and Management Sciences 2017*, Feb. 12-14, Barcelona, Spain.
- Ying-Hsuan Lu, Kuo-Hao Chang, Liam Y. Hsieh (2016), "Factor Screening Method for Quantile-based Performance Measure," *Proceedings of the Asia Pacific Industrial Engineering & Management Systems Conference 2016 (APIEM2016)*, Dec. 7-10, Taipei, Taiwan.
- Wan-Ting Kao, Liam Y. Hsieh, Kuo-Hao Chang (2015), "Optimal Parallel Machine Allocation in Integrated Circuit Assembly," *Proceedings of the Asia Pacific Industrial Engineering & Management Systems Conference 2015 (APIEMS2015)*, Dec. 8-11, Ho Chi Minh City, Vietnam.
- Liam Y. Hsieh, Chi-Bin Cheng (2015), "Solving an Order Promising and Scheduling Problem in Semiconductor Back-end Testing by Fuzzy Optimization and Genetic Algorithm," *2015 International Symposium on Semiconductor Manufacturing Intelligence (ISMI2015)*, Oct. 16-18, KAIST, Daejeon, Korea.
- Liam Y. Hsieh, Kuo-Hao Chang (2014), "Determining the Optimal Wafer Start Rate in Semiconductor Manufacturing during New Technology Ramp-up," *Proceedings of the Asia Pacific Industrial Engineering & Management Systems Conference 2014 (APIEMS2014)*, Oct. 12-15, Jeju, Korea.
- Liam Y. Hsieh, Kuo-Hao Chang, Chen-Fu Chien (2014), "A Web-based Capacity Planning System for a Semiconductor Wafer Fabrication: Design and Implementation," *2014 International Symposium on Semiconductor Manufacturing Intelligence (ISMI2014)*, Aug. 16-18, Taipei, Taiwan.
- Liam Y. Hsieh, Kuo-Hao Chang, Chen-Fu Chien (2013), "Determining Optimal Hot Lot Percentage in Semiconductor Wafer Fabrication," *Proceedings of 9th International Conference on Intelligent Manufacturing and Logistics Systems & 2013 International Symposium on Semiconductor Manufacturing Intelligence (IML2013 & ISMI2013)*, Feb. 27-Mar. 2, Shanghai, China.
- Liam Y. Hsieh, Kuo-Hao Chang, Chen-Fu Chien, Li-Yuan Yen (2012), "An Effective Scheduling and Dispatching Approach for Cycle Time Reduction in Semiconductor Manufacturing," *International Conference on Innovative Design and Manufacturing 2012 (ICIDM 2012)*, Dec. 12-14, Taipei, Taiwan.
- Liam Y. Hsieh, Chih-Yung Wen, Chen-Yu Li (2012), "A decision model for selecting subsidized electric scooter using SMARTS," *15th Decision Analysis Symposium*, Jan. 7, Hsinchu, Taiwan.

#### **ARTICLES UNDER REVIEW OR IN PREPARATION**

- Liam Y. Hsieh, Chi-Bin Cheng, "Efficient Due Date Quoting and Production Scheduling for Integrated Circuit Packaging with Reentrant Processes," under review by *IEEE Transactions on Components, Packaging and Manufacturing Technology*.
- Liam Y. Hsieh, Si Zhang, Jie Xu, Chun-Hung Chen, "A Collective Capacity Planning for a Borderless GigaFab with Capacity Limitation in Cross-fab Transition," (in preparation).

Liam Y. Hsieh, Kuo-Hao Chang, Amna Tahir, Mao-Kai Hsu, " Campaign Planning for Multi-Purpose Batch Plants: A Case Study for Active Pharmaceutical Ingredient Production," (in preparation).

Liam Y. Hsieh, "Throughput Rate Management System for Semiconductor Wafer Fabrication Facilities: Methodologies, Systems and Implementation," invited feature paper for *Processes*.

### **TEACHING AND MENTORING EXPERIENCE**

<b>Thesis Supervisor</b> , National Tsing Hua University, Taiwan Ying-Hsuan Lu, M.S. (graduated on July 2017) Wan-Ting Kao, M.S. (graduated on July 2016) Mao-Kai Hsu, M.S. (graduated on July 2015)	Since Fall 2013
<b>Adjunct Instructor</b> , Chien-Hsin University of Technology, Taiwan Under-graduate course, project management, for Dept. of Business Administration	Fall 2013
<b>Consultant</b> , AdvancedTEK International Corp., China Training courses of tailored information systems for customers	March 2013
<b>Internal Instructor</b> , ProMOS Technologies, Taiwan On-job training program, data analytics by SQL and Excel VBA	Summer 2010
<b>Teaching Assistant</b> , Chaoyang University of Technology, Taiwan Under-graduate course, engineering statistics, for Dept. of Industrial Management	Fall 2005

### **ACADEMIC SERVICES**

#### **Program/Techinal Committee:**

International Symposium on Semiconductor Manufacturing Intelligence, Oct. 16-18 2015, Daejeon, Korea.

4th International Conference on Advances and Management Sciences, Feb. 12-14 2017, Barcelona, Spain.

5th International Conference on Advances and Management Sciences, Feb. 11-13 2018, Torino, Italy.

#### **Review Committee:**

International Conference on Mechanical, Electronics and Computer Engineering, Jan. 7-9 2016, New York, USA.

Asia Pacific Industrial Engineering & Management Systems Conference, Dec. 7-10 2016, Taipei, Taiwan.

#### **Journal Referee:**

IEEE Transactions on Systems, Man and Cybernetics: Systems

IEEE Transactions on Automation Science and Engineering

IEEE Transactions on Semiconductor Manufacturing

Computer & Industrial Engineering

International Journal of Production Research

Asia-Pacific Journal of Operational Research

Journal of Industrial and Production Engineering

International Journal of Industrial Engineering: Theory, Applications and Practice

Industrial Engineering & Management Systems

IETE Journal of Research

### **INVITED PRESENTATIONS**

"An application of Operations Research for backpackers", (2014) Apr. 8, TKU, New Taipei, Taiwan.

"Applied Statistics in Semiconductor Wafer Fab: some applications", (2013) Dec. 23, CYUT, Taichung, Taiwan.

"Industrial Engineering in IT consulting industries", (2013) May 22, NTHU, Hsinchu, Taiwan.

"Discussions of a case project of SCM", (2013) Mar. 26, TKU, New Taipei, Taiwan.

### **PROFESSIONAL MEMBERSHIPS**

The Institute of Electrical and Electronics Engineers (IEEE)

The Institute for Operations Research and the Management Sciences (INFORMS)

Chinese Institute of Industrial Engineers (CIIE)