

## 國立清華大學第 3 屆傑出產學研究獎得獎人簡介



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簡禎富講座教授 1996 年創立決策分析研究室(DALab) 以「提升卓越決策」(Enabling A+ Decisions) 為核心，以清華為名發展「紫式決策」，提出 PDCCCR (Pricing-Demand-Capacity-CapEx-Cost-Return) 製造策略方法論和「工業 3.5」作為混合策略維持台灣製造相對優勢，長期投入大數據分析、資源調度優化與智慧製造決策之基礎研究和技術發展，特別是發展大數據分析技術，以解決半導體進入奈米製程後，挑戰物理極限，以致製程允差不斷微縮，加上光罩層數和製造程序更多更複雜、影響變數多且前後製程有多層疊代的複雜交互作用，造成新製程良率難以快速提升量產的挑戰，並以產學合作企業為「實驗室」來檢驗效度，已取得學理創新和技術突破成果，並取得 8 項美國發明專利和 4 項中華民國發明專利，主持的產學合作計畫經費超過一億三仟萬元，創造本校技轉金收入超過 1200 萬元；近五年協助產業發展績效包括產學合作計畫共 34 件，總金額超過 4,500 萬元、共有 21 項技術移轉，累積技轉金 918 萬元，做到理論研究經的起嚴格的學術檢驗且實證效度能夠達到合作廠商的嚴格標準要求。發表超過 150 篇學術期刊論文（其中一篇為 HiCi），編著有《半導體製造技術與管理》、《決策分析與管理》、《資料挖礦與大數據分析》、《產業工程與管理個案》、以及《哈佛教你精通大數據》台積電大數據個案和 11 篇台灣公司的哈佛管理個案。簡禎富講座教授並主持科技部深耕工業基礎技術計畫、IC 產業同盟暨清華-台積電卓越智造中心，以及本校邁頂中心「先進智慧製造計畫」，領導跨科系團隊協助台灣產業提升智慧製造能力，並與台積電等廠商共同主辦「半導體大數據分析競賽」培養人才。榮獲行政院國家品質獎研究類個人獎(2012)、國科會傑出研究獎(2011、2007)、第一級主持人獎勵(2005-2008)、優秀年輕學者研究計畫(2011-2014)、科技管理學會院士(Fellow)(2012)、第一屆東森盃大數據競賽冠軍(2014)、清華大學產學績優教師(2013)、清華大學績優技轉教師獎(2012)、智財商化績優教師(2012)、the 2011 Best Paper Award of IEEE Trans. on

Automation Sciences & Engineering、the 2015 Best Paper Award of IEEE Trans. on Semiconductor Manufacturing、工業工程獎章(2016、2010)、傑出工程教授(2010)、經濟部大學產業經濟貢獻獎(2009)、清華大學第一屆傑出產學合作獎(2007)及教育部產學合作研究獎(2002)等榮譽，並持續整合學術與產業的研究實現「天下興亡匹夫有責」的目標，使所學和培養的人才可以幫助臺灣產業提升決策品質和智慧製造能力。

**Tsinghua Chair Professor Chen-Fu Chien established Decision Analysis Laboratory (DALab) in 1996 that aims to develop big data analytics, resource optimization, and intelligent decision technologies for enabling A+ decisions. He has received over NT\$130 million research funding and NT\$12 million technology license fee from industries for NTHU. He also developed UNISON Decision Framework, PDCCCR for Manufacturing Strategy, and Industry 3.5 Hybrid Strategy. He is serving the P.I. and Director for the NTHU-TSMC Center for Manufacturing Excellence and the Semiconductor Technologies Empowerment Partner (STEP) Consortium sponsored by Ministry of Science & Technology (MOST) that fosters a “virtual vertical integration” among the collaborative companies to improve their analytical capability for smart production. The STEP Consortium is also conducting a Semiconductor Big Data Grand Challenge with realistic scenarios to support and train interested Taiwanese students to learn big data analysis via effective training and empirical studies and hopes to incubate a group of young talents with an interdisciplinary background for the further development of Taiwanese high-tech industry. To this end, Prof. Chien and his team have shared their case studies and materials learned from long term collaborations with leading companies and published more than 150 journal articles (including 1 HiCi), 12 invention patents, and a number of textbooks on decision analysis and big data analytics. While it is unrealistic to hope that Taiwanese industries can leap up to the level of their Germany and U.S. counterparts, Prof. Chien believes that Taiwanese manufactures can consolidate their successful past experience with an advanced analytic technology of big data and proposes the concept of “Industry 3.5” as a hybrid strategy for disruptive innovations to maintain competitive advantages in the fast changing environment. Dr. Chien received the National Quality Award, Distinguished Research Awards and Tier 1 Principal Investigator (Top 3%) from NSC, Distinguished University-Industry Collaborative Research Award from the Ministry of Education, University Industrial Contribution Awards from the Ministry of Economic Affairs, Distinguished University-Industry Collaborative Research Award from NTHU, Distinguished Young Industrial Engineer Award, Best IE Paper Award, and the IE Award from Chinese Institute of Industrial Engineering (CIIE), Best Engineering Paper Award and Distinguished Engineering Professor by Chinese Institute of Engineers in Taiwan, the 2011 Best Paper Award of IEEE Transactions on Automation Science and Engineering, and the 2015 Best Paper Award of IEEE Transactions on Semiconductor Manufacturing.**