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Cheng-Han Yu

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Education

University of California, Santa Cruz, USA
- Ph.D. Candidate in Statistics and Applied Mathematics. Advisor: Prof. Raquel Prado

Indiana University Bloomington, USA
- Ph.D. program in Statistical Science, Aug 2011 - May 2013. Advisor: Prof. Gabriel Huerta
- M.A. in Economics, May 2012.

National Chengchi University, Taiwan
- M.A. in Public Finance, July 2005. Advisor: Prof. K.L. Glen Ueng
- B.A. in Public Finance, June 2003.

Research Interests

Bayesian spatio-temporal modeling with application in brain imaging, high-dimensional data analysis, variable selection, data visualization.

Publications

Published papers:

1. Feldman, S.R., R. Balkrishnan, H. C. Lin, **C. H. Yu**, and S.A. Davis (2014). Underuse of Early Follow-Up Visits: A Missed Opportunity to Improve Patients' Adherence. *Journal of Drugs in Dermatology*, 13(7):833-836.
2. Ueng, K.L.G. and **C. H. Yu** (2008). The Neutrality of Profit Tax - Two-Phase Decision Model Under Uncertainty of Economy. *Taiwan Public Finance Review*, 40, 4, 118-130.
3. **Yu, C. H.** (2005). Master thesis: *"The Output and Tax Evasion Decisions of Monopolistic Firm - Under the Conditions of Limited Liability and Market Uncertainty"*

Papers under review:

1. **Yu, C. H.**, R. Prado, H. Ombao, and D. Rowe (2016). A Bayesian Variable Selection Approach Yields Improved Brain Activation From Complex-Valued fMRI.

Technical reports:

1. Liu, S. Z., **C. H. Yu**, F. H. Lin, W. L. Wang, C. L. Wu (2008). Research on Regional Characteristics, Industry Clusters and Competitiveness Assessment Index of Taiwan Districts, granted by National Science Council, Taiwan

Current research projects:

1. *Bayesian spatial hierarchical modeling of complex-valued fMRI signals*, with Prof. Raquel Prado

Conference Posters:

1. *Bayesian modeling of complex-valued fMRI signals*, ISBA 2016 World Meeting, June 2016, Sardinia, Italy, International Society for Bayesian Analysis
2. *Bayesian modeling of complex-valued fMRI signals*, Data Science Afternoon, May 2015, UC Santa Cruz

Invited Talks:

1. *Bayesian spatial modeling of complex-valued fMRI signals*, Network of Mind 2017 and Center of Translational Data Science, University of Sydney, Australia 2017.

Course projects:

1. *Proper Scoring Rules*, UCSC AMS221 Bayesian Decision Theory (Prof. Bruno Sanso)
2. *Complex-valued EM Variable Selection of fMRI Signals*, UCSC AMS268 Advanced Bayesian Computation (Prof. Rajarshi Guhaniyogi)
3. *Numerical Linear Algebra: LU Decomposition with Pivoting for Solving Linear Systems using Fortran and Python*, UCSC AMS209 Scientific Computing (Prof. Dongwook Lee)
4. *Particle Learning for Mixture Models*, UCSC AMS241 Bayesian Nonparametrics (Prof. Abel Rodriguez)
5. *Bayesian Parameter Estimation of Stochastic Differential Equations*, UCSC AMS216 Stochastic Differential Equations (Dr. Tatiana, Xifara)
6. *Markov Random Fields and the Ising Model*, UCSC AMS263 Stochastic Processes (Prof. Athanasios Kottas)
7. *Linear regression for Boston Housing - model checking, crossvalidation, and variable selection*, UCSC AMS256 Linear Models (Prof. Abel Rodriguez)
8. *The Bayesian Hierarchical Linear Regresssion Model on the Temperature of the Surface of the Sea*, UCSC AMS207 Bayesian Modeling (Prof. Bruno Sanso)
9. *Multivariate Analysis of Automobile Rating Data - Dimension reduction and Classification*, UCSC AMS225 Multivariate Statistics (Prof. Juhee Lee)
10. *A Review of Sample-path Optimization*, IUB S710 Statistical Computing (Prof. Michael Trosset)
11. *Ordinary Kriging and Spline on the Unit Circle*, IUB S681 Spatial Statistics (Prof. Chunfeng Huang)
12. *A Review of Particle Filtering and Parameter Learning*, IUB S681 Bayesian Computation (Prof. Gabriel Huerta)
13. *Derivation and Applications of Black-Scholes Partial Differential Equation and Black-Scholes formulas*, IUB M442 Partial Differential Equations II (Prof. Norm Levenberg)
14. *Taiwan GDP Forecasting, an Appication of SARIMA models*, IUB S650 Time Series Analysis (Prof. Jerome Busemeyer)

Experience

Instructor

- University of California, Santa Cruz
  - AMS 7L Statistical Methods for the Biological, Environmental, and Health Sciences Laboratory (Fall 2016)

Research Assistant with Prof. Shuen-Zen Liu, Center for Competitiveness and Innovation, Department of Accounting, National Taiwan University, 2007 - 2008

- analyzing financial and economic indices to examine the competitiveness of Taiwan companies
- reading literatures, compiling information to assist Prof. Liu in publishing his book about performance management[1]

Research Assistant with Prof. Li-Chen Hsu, Department of Public Finance, National Chengchi University, 2005

[1] http://www.readingtimes.com.tw/timeshtml/ad/DH0185/index.html

- Experimental Study on the Effects of Reputation and Fairness on Cooperation in the Voluntary Contribution Mechanism, granted by the National Science Council, Taiwan

Teaching Assistant

- University of California, Santa Cruz
  - AMS7 Statistical Methods for the Biological, Environmental, and Health Sciences (Spring 2016, T. Xifara; Summer 2015, B. Mendes; Winter 2015, R. Prado)
  - AMS131 Introduction to Probability Theory (Summer 2016, D. Draper; Spring 2014, R. Morris)
  - AMS203 Introduction to Probability Theory (Fall 2015, R. Prado)
- Indiana University Bloomington
  - S420/620 Introduction to Mathematical Statistics (Spring 2013, B. Luen)
  - S432/632 Applied Linear Models II (Spring 2013, C. Huang)
  - S431/631 Applied Linear Models I (Fall 2012, C. Huang)
  - S426/626 Bayesian Theory and Data Analysis (Fall 2012, G. Huerta, now at Univeristy of New Mexico).
  - K310 Statistical Techniques (Spring 2012, S. Sang, now at University of Mississippi)
- National Chengchi University
  - Principle of Macroeconomics (Spring 2005)
  - Business Statistics (Fall 2004)
  - Intermediate Microeconomics (Fall 2003)

`R` **Workshop Assistant,** Indiana Statistical Consulting Center Fall 2012

- tutoring on data management, descriptive statistics, graphics, linear regression, testing, creating functions and basic if-else and for loop statement

Second Lieutenant, Kaohsiung, Taiwan 2005 - 2007

Professional Certificates

Statistics

- Specialist of Applied Statistics (SAS programming on multivariate analysis), Taiwan Applied Statistics Association 2007

Programming

- `C/C++` Training Program, Department of Computer Science and Information Engineering, National Taiwan University 2008

Finance

- Senior Securities Specialist, Taiwan Securities Association 2006
- Trust Specialist, Trust Association of Taiwan 2006
- Securities Investment Trust and Consulting Professionals, Securities Investment and Consulting Association of Taiwan 2006
- Financial Planning Personnel, Taiwan Academy of Banking and Finance 2006
- Bank Internal Control and Audit, Taiwan Academy of Banking and Finance 2006

MOOC Certificates

Coursera

- Data Science Specialization, Johns Hopkins University (completed all courses except Developing Data Products and Capstone Project)
- Python Programming
  - Using Python to Access Web Data, University of Michigan

– An Introduction to Interactive Programming in Python, Rice Univerisity
– Introduction to Python programming, University of Toronto

Udemy

- Python for Data Analysis and Visualization
- Python for Data Science and Machine Learning

Programming Languages

Scientific and Statistical Computing: Fluent: R. Good: MATLAB, SAS, SPSS, Stata, WinBUGS/OpenBUGS.
General Programming: Good: Python (NumPy, Scipy, pandas, matplotlib, seaborn). Basic: Fortran, C/C++ (Rcpp package)
Markup: Fluent: LaTeX, Markdown. Good: HTML/CSS.

Academic Honors

Runner-up of ASA Statistics in Imaging Section Student Paper Competition for JSM	2017
Chanceller's Fellowship, University of California, Santa Cruz	2013
Graduate Scholarship, Taiwan Student Association, Indiana University	2009
Graduate Scholarship, American International Education Foundation	2008
Excellence during Military Service, Ministry of National Defense, Taiwan	2007
Honorary Member of the Phi Tau Phi Scholastic Honor Society of Taiwan	2005
Teaching Excellence Award (Microeconomics, Business Statistics)	2004, 2005
Department Graduate Fellowship, National Chengchi University	2004, 2005
Hsing-Hua Liu Scholarship, National Chengchi University	2002
National Chengchi University Presidential Awards	2001

Awarded to the top 5% students in each department