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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
Dissertation topic: Bayesian models for complex-valued fMRI data
Expected graduation date: March 2018

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. and B.A. in Public Finance, July 2005. Advisor: Prof. K.L. Glen Ueng

Research Interests

Bayesian spatio-temporal modeling, high-dimensional data analysis, variable selection, data visualization, brain imaging, R programming

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*"

Technical reports:

- **Yu, C. H.**, R. Prado, H. Ombao, and D. Rowe (2017). A Bayesian Variable Selection Approach Yields Improved Detection of Brain Activation From Complex-Valued fMRI. Resubmitted to *Journal of the American Statistical Association, Application and Case Studies*.
- **Yu, C. H.**, R. Prado, H. Ombao, and D. Rowe (2018). Bayesian Space-Time Modeling of Complex-Valued fMRI via Kernel Convolution. Manuscript.
- **Yu, C. H.**, R. Prado, H. Ombao, and D. Rowe (2018). Multi-Subject Analysis of Activation and Functional Connectivity from Complex-Valued fMRI. In preparation.
- 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

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* Program on Challenges in Computational Neuroscience: Workshop on Challenges in Functional Connectivity Modeling and Analysis: April 8-10, 2016, The Statistical and Applied Mathematical Sciences Institute (SAMSI).
3. *Bayesian modeling of complex-valued fMRI signals*, Data Science Afternoon, May 2015, UC Santa Cruz

Invited Talks:

1. *A Bayesian Variable Selection Approach Yields Improved Brain Activation From Complex-Valued fMRI*, ASA Statistics in Imaging Section Student Paper Competition Runner-Up, Joint Statistical Meetings, Baltimore, 2017
2. *Bayesian spatial modeling of complex-valued fMRI signals*, Network of Mind 2017 and Center of Translational Data Science, University of Sydney, Australia 2017.

Workshops:

1. 3rd Annual Summer Institute in Statistics for Big Data, University of Washington, Seattle 2017
2. Workshop on Big Data in Brain Science, University of California, Irvine 2017

Experience

Instructor

- University of California, Santa Cruz
 - AMS 7L Statistical Methods for the Biological, Environmental, and Health Sciences Laboratory (Fall 2016, Summer 2017)

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 management¹

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

- 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 2017 J. Lee; 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 University of New Mexico).

¹<http://www.readingtimes.com.tw/timeshtml/ad/DH0185/index.html>

– K310 Statistical Techniques (Spring 2012, S. Sang, now at University of Mississippi)

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 Platoon Leader, Kaohsiung, Taiwan 2005 - 2007

Selected Ph.D. Coursework

- **Probability, Statistics and Computing Fundamentals**
 - AMS205B Classical Inference (D. Draper)
 - AMS209 Scientific Computing (D. Lee)
 - AMS256 Linear Models (A. Rodriguez)
 - AMS263 Stochastic Processes (A. Kottas)
- **Bayesian Statistics**
 - AMS206B Bayesian Inference (R. Prado)
 - AMS207 Bayesian Modeling (B. Sanso)
 - AMS221 Bayesian Decision Theory (B. Sanso)
 - AMS241 Bayesian Nonparametrics (A. Rodriguez)
 - AMS268 Advanced Bayesian Computation (R. Guhaniyogi)
- **Specific Topics**
 - AMS216 Stochastic Differential Equations (T. Xifara)
 - AMS225 Multivariate Statistical Methods (J. Lee)
 - AMS223 Time Series Analysis (R. Prado)
 - AMS245 Spatial Statistics (B. Sanso)
 - AMS274 Generalized Linear Models (A. Kottas)

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 Capstone Project)
- Python Programming
 - Using Python to Access Web Data, University of Michigan
 - An Introduction to Interactive Programming in Python, Rice University
 - Introduction to Python programming, University of Toronto

Udemy

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

Languages and Skills

Scientific and Statistical Computing: Fluent: R. Good: MATLAB, SAS (STAT/ETS), SPSS, Stata, WinBUGS/OpenBUGS.

General Programming: Good: Python (NumPy, Scipy, pandas, matplotlib, seaborn). Basic: Fortran, C/C++ (Rcpp package)

Markup: Fluent: L^AT_EX, Markdown. Good: HTML/CSS.

Others: JMP

Honors and Scholarships

Runner-up of ASA Statistics in Imaging Section Student Paper Competition for JSM	2017
Summer Institutes Scholarship, University of Washington, Seattle	2017
Chancellor'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
<i>Awarded to the top 5% students in each department</i>	

Services

Volunteer of CBMS: Regional Conference On Spatial Statistics	2017
Coordinator of space-time group meeting with UC Irvine	2017

References

1. **Dr. Raquel Prado**
Professor, Applied Mathematics and Statistics
University of California, Santa Cruz
Baskin Engineering, Room 365C
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2. **Dr. Athanasios Kottas**
Professor, Applied Mathematics and Statistics
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Baskin Engineering, Room 365A
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3. **Dr. Rajarshi Guhaniyogi**
Assistant Professor, Applied Mathematics and Statistics
University of California, Santa Cruz
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4. **Dr. Bruno Sanso**
Professor, Applied Mathematics and Statistics
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5. **Dr. Daniel Rowe**
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