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Cheng-Han Yu

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Employment

- Postdoctoral Fellow (2018 - 2020). Department of Statistics, Rice University.
- Data Scientist (2018 - 2020). Shell Oil Company.
- Research Assistant (2015 - 2018). Department of Applied Mathematics and Statistics, University of California, Santa Cruz.
- Instructor and Teaching Assistant (2014 - 2018). Department of Applied Mathematics and Statistics, University of California, Santa Cruz.

Education

University of California, Santa Cruz, USA
- Ph.D. in Statistics and Applied Mathematics, May 2018. Advisor: Prof. Raquel Prado
Dissertation title: Bayesian modeling of complex-valued fMRI signals

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 analysis, variable selection, visualization, brain imaging, R programming

Publications

Published papers:

1. **Yu, C. H.**, R. Prado, H. Ombao, and D. Rowe (2018). A Bayesian Variable Selection Approach Yields Improved Detection of Brain Activation From Complex-Valued fMRI. *Journal of the American Statistical Association, Application and Case Studies. Accepted.*
2. 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.
3. 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.
4. **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 (2018). Bayesian Spatial Modeling of Complex-Valued fMRI via Kernel Convolution. Submitted to Annuls of Applied Statistics.
- **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. *Bayesian Spatial Modeling of Complex-Valued fMRI via Kernel Convolution*, Joint Statistical Meetings, Vancouver, 2018.
2. *Bayesian Spatial Modeling of Complex-Valued fMRI via Kernel Convolution*, Statistical Methods in Imaging Conference, University of Pennsylvania, 2018.
3. *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.
4. *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

Teaching Experience

Instructor

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

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)
  - AMS132 Classical and Bayesian Inference (Winter 2018)
  - AMS203 Introduction to Probability Theory (Fall 2017 J. Lee; Fall 2015, R. Prado)
  - AMS207 Intermediate Bayesian Statistical Modeling (Spring 2017, 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).

`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

Selected Ph.D. Coursework

- **Probability, Statistics and Computing Fundamentals**
  AMS 205B Classical Inference (D. Draper)
  AMS 209 Scientific Computing (D. Lee)
  AMS 256 Linear Models (A. Rodriguez)
  AMS 263 Stochastic Processes (A. Kottas)
- **Bayesian Statistics**
  AMS 206B Bayesian Inference (R. Prado)
  AMS 207 Bayesian Modeling (B. Sanso)
  AMS 221 Bayesian Decision Theory (B. Sanso)
  AMS 241 Bayesian Nonparametrics (A. Rodriguez)
  AMS 268 Advanced Bayesian Computation (R. Guhaniyogi)
- **Specific Topics**
  AMS 216 Stochastic Differential Equations (T. Xifara)
  AMS 225 Multivariate Statistical Methods (J. Lee)
  AMS 223 Time Series Analysis (R. Prado)
  AMS 245 Spatial Statistics (B. Sanso)
  AMS 274 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 Univerisity
  – 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: LaTeX, 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
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

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
   831-459-1488
   raquel@soe.ucsc.edu
2. **Dr. Athanasios Kottas**
   Professor, Applied Mathematics and Statistics
   University of California, Santa Cruz
   Baskin Engineering, Room 365A
   831-459-5536
   thanos@soe.ucsc.edu
3. **Dr. Rajarshi Guhaniyogi**
   Assistant Professor, Applied Mathematics and Statistics
   University of California, Santa Cruz
   Baskin Engineering, Room 359
   831-459-5797
   rguhaniy@ucsc.edu
4. **Dr. Bruno Sanso**
   Professor, Applied Mathematics and Statistics

University of California, Santa Cruz
Baskin Engineering, Room 361C
831-459-1484
bruno@soe.ucsc.edu

5. **Dr. Daniel Rowe**
Professor, Mathematics, Statistics and Computer Science
Marquette University
Katharine Reed Cudahy Hall, Room 313
414-288-5228
daniel.rowe@marquette.edu