Pei-Shan Yen

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PROFILE	Ph.D. candidate majoring in Biostatistics at the University of Illinois at Chicago. 16 years of work experience in applied statistics specializing in data analysis, survey sampling, and marketing strategies. Strong interest in the field of neuroimaging studies and biomedical research. Publications: one book (Big Data), eight journal papers (including three papers under review), eight conference proceedings, five talks.

EDUCATION

University of Illinois at Chicago — **Chicago, USA**
Ph.D. in Biostatistics (GPA: 4.00) — 2018 - Present
- *Thesis*: Longitudinal High-Dimensional Mediation Model for Multimodal Neuroimage Data
- *Honor*: Paul Levy Memorial Student Scholarship (2021-2022)

National Chengchi University — **Taipei, Taiwan**
M.S. in Statistics (GPA: 3.86) — 2010
- *Thesis*: An International Study of 2010 Population Census Methods

University of Taipei — **Taipei, Taiwan**
B.S. in Mathematics (GPA: 3.55) — 2005
- *Honor*: Nominee for 2012 Outstanding Alumni Award; Ranked Top 3% in National Linear Algebra Competition (420 contestants in total); 2002 Mr. Shao-Wu Chou Memorial Scholarship

TECHNICAL SKILLS

- **(Specialty)** Data Analytics, Marketing Research, Big Data, Longitudinal Data Analysis, Project Management
- **(Programming)** R/R Shiny/SAS/Minitab/Stata/SQL/WinBUGS

GRADUATE COURSEWORK

- (**Doctoral level**) Generalized Linear Models, Multivariate Analysis, Advanced Statistical Inference, Large Sample Theory, Bayesian Methods, Missing Data, Computational Statistics

- (**Master level**) Health Analytics, Longitudinal Data Analysis, Survival Analysis, Categorical Data Analysis, Experiment Design, Demography, Sampling Methods, Statistical Consulting, Epidemiology, Marketing Management, Product Management

DOCTORAL RESEARCH

Longitudinal High-Dimensional Mediation Model for Multimodal Neuroimage Data
Advisor: Prof. Dulal Bhaumik
- Quantified the longitudinal mediation effects of structural and functional activities on risk of the patients who suffered from mental disorders
- Addressed temporal and spatial correlations among brain connectivity and employed a prioritized multiple hypothesis testing procedure

PROFESSIONAL FULL-TIME EXPERIENCES

Taiwan Mobile, Taiwan — Apr 2014 - Apr 2016
(*Top 2 Telecom Company in Taiwan*)
Senior Data Scientist, Acquisition and Loyalty Division
- Conducted Big Data projects: managed marketing projects and provided analytic idea to Information Technology team to locate target customers for preventing termination of contract
- Used Oracle by SQL syntax to identify customer characteristics for increasing loyalty
- Proposed incentive plans and managed all sales performance of customer call center
- Led new iPhone innovated research: used data mining skills to analyze long-term user behaviors and executed mystery shopper surveys to design practical new mobile plans

NCKU Research and Development Foundation, Taiwan — Nov 2011 - Feb 2014
(*The Leading Renewable Energy Program Sponsored by Taiwan Bureau of Energy*)
Senior Data Analyst, Energy Research Center
- Analyzed database for 130,000 national users and monitored user behavior
- Evaluated lifetime of solar systems and proposed the adjustment of subsidy policy
- Conducted 30 field surveys in rural area, poultry & butchery industry, and tourism field

United Advertising Group, Taiwan Apr 2011 - Oct 2011
(*Top Advertising Company in Taiwan and the Only Taiwanese Company in ICOM Network*)
Consultant, Uni-Survey Link Research
- Specialized in both qualitative and quantitative research. For qualitative methods, hosted 16 focus group interviews, 5 mystery shopper surveys, and 6 central location tests
- Led consulting projects and provided brand strategies with long-term international partners

104 Group, Taiwan May 2010 - Apr 2011
(*Largest Human Resource Company in Taiwan*)
Data Analyst, 104 Web Survey Center
- Executed 12 online survey research projects via international or domestic users, composed reports, and proposed new research plans
- Performed data mining to explore 104 database and developed specific job market regression models, including designed vocation training for Taiwan Ministry of Labor

National Chengchi University, Taiwan Jul 2005 - Aug 2007
(*Top College of Commerce in Taiwan*)
Data Analyst, Market Survey Research Center
- Performed 26 quantitative research projects via telephone/interview/mail/web methods
- Controlled data quality, composed reports, and offered feasible solutions to clients

GRADUATE RESEARCH ASSISTANTSHIP

University of Illinois at Chicago Nov 2018 - Present
Graduate Research Assistant, Center for Clinical and Translational Science
- Performed consulting and biomedical data analysis (Coding: SAS Macro, R/R Shiny)

Graduate Research Assistant, Department of Emergency Medicine
- Performed consulting and data analysis for medical doctors (Coding: R)

National Chengchi University, Taiwan Feb 2008 - Oct 2010
Graduate Consultant, Science Service Research Center
- Launch pioneering product "ORBI" in exhibition industry sponsored by IBM and HTC

Graduate Business Analyst, Department of Management Information System
- Innovated telephone interview system with advanced statistical function (owned copyright)

Graduate Associated Statistican, Statistical Consulting Center
- Performed consulting projects for Hennessy, Farglory Construction, etc.

(mater-level) Graduate Research Assistant, Market Survey Research Center
- Conducted survey research for Simmons and the College of Commerce

Academia Sinica, Taiwan Nov 2007 – Dec 2008
Graduate Assistant Consultant, Institute of Biomedical Sciences
- Performed GeneSpring software to identify the characteristics of human genes

GRADUATE TEACHING ASSISTANTSHIP

University of Illinois at Chicago Aug 2018 - May 2019
- Biostatistics II, School of Public Health
- Analytic and Research Methods in Public Health, School of Public Health

National Chengchi University, Taiwan Feb 2007 - Jun 2009
- Mathematical Statistics II, Department of Statistics
- Mathematical Statistics I, Department of Statistics
- Sampling Survey, Department of Statistics
- Statistical Software, Department of Statistics

PUBLICATIONS

Book

1. C.S. Yue and **P.S. Yen**. "Big data: The data wisdom and knowledge-based economics." Tsang Hai Publishing, Taiwan, 2016.

Journal Publications

1. C.C. Li, A.K. Matthews, **P.S. Yen**, Y.F. Chen, and X.Q. Dong."Demographic Predictors of Psychological Distress among a Diverse Sample of Older Asian Americans." Journal of Immigrant and Minority Health (under review).

2. D.K. Bhaumik, Y.B. Song, **P.S. Yen**, and O.A. Ajilore. "Power Analysis for High Dimensional Neuroimaging Studies." Psychiatric Annals (under review).

3. I. Imayama, A. Gupta, **P.S. Yen**, Y.F. Chen, B. Keenan, R. R. Townsend, J. A. Chirinos, F. M. Weaver, D. W. Carley, S. T. Kuna, and B. Prasad. "Racial Differences in Cardiovascular Response to Positive Airway Pressure Treatment." Journal of Clinical Sleep Medicine (under review).

4. C.C. Li, A.K. Matthews, **P.S. Yen**, Y.F. Chen, and X.Q. Dong. "Intimate partner violence and Its Relationship with Psychological Distress Among Older Asian Americans: Results from the California Health Interview Survey." Asian Journal of Psychiatry, 2021.

5. C.C. Li, A.K. Matthews, **P.S. Yen**, Y.F. Chen, and X.Q. Dong. "The Influence of Perceived Discrimination in Healthcare Settings on Psychological Distress Among a Diverse Sample of Older Asian Americans." Aging & Mental Health, 2021.

6. **P.S. Yen** and K.C. Chang. "Survey and analysis of solar water heaters utilization status in Taiwan." Journal of Taiwan Energy, 2014.

7. C.W. Kuo, **P.S. Yen**, W.C. Chang and K.C. Chang. "The design and optical analysis of compound parabolic collector," Procedia Engineering, 2014.

8. **P.S. Yen** and C.S. Yue. "An international study of 2010 population census methods." Journal of Population Studies, 2010.

Conference Proceedings

1. J. Li, K. Qin, P.B. Doshi, X.D. Zhu, P. Kotini-Shah, M. Granado, H. Kim, **P.S. Yen**, R. Gordon, H.E. Wang, and T. Hoek. "Novel Blood Biomarker Taurine and Glutamate for Early Predicting Outcomes After Out-of-hospital Cardiac Arrest." AHA Resuscitation Science Symposium, USA, 2020.

2. Y.F. Wang, K. Schachtschneider, Y.H. Huang, R. Gaba, P. Nguyen, **P.S. Yen**, M. Sverdlov, G. Guzman, and R. Lokken. "Infiltration of T-cell subpopulations in hepatocellular carcinoma is associated with tumor size, BCLC stage, and transplant-free survival." Society of Interventional Radiology Conference, USA, 2020.

3. **P.S. Yen** and C.W. Kuo. "Policy for solar water heaters in Taiwan: An International Perspective," Grand Renewable Energy." Grand Renewable Energy, Tokyo, Japan, 2014.

4. C.W. Kuo, **P.S. Yen** and K.C. Chang. "Generation of typical solar radiation 2014 year for Taiwan," Grand Renewable Energy, Tokyo, Japan, 2014.

5. **P.S. Yen** and C.S. Yue. "An International Study of 2010 Population Census Methods." Taiwan Demography Association Annual Meeting, Taipei, Taiwan, 2010.

6. **P.S. Yen** and C.S. Yue. "Feedbacks on Taiwan population registered system: A lesson from international experience using census techniques." Population Policy Symposium in Taipei City, Taipei, Taiwan, 2010.

7. **P.S. Yen** and C.S. Yue. "A study of 2010 population census methods." Taiwan Demography Association Annual Meeting, Taipei, Taiwan, 2009.

8. C.S. Yue and **P.S. Yen**. "A study on whether Taiwan population census could be replaced by survey via American Community Survey experience." Chinese Statistical Association Annual Meeting, Taipei, Taiwan, 2008.

Invited Talks
1. **P.S. Yen** and S. Konda. "Clustering Depression Data." Department of Epidemiology and Biostatistics, University of Illinois at Chicago, Nov 2019.

2. **P.S. Yen**. "Future Statistical Application- Big Data Project on Mobile Industry." Department of Mathematics, University of Taipei, Taiwan, Sep 2018.

3. **P.S. Yen** and K.C. Chang. "Analysis of solar thermal energy market in Taiwan." 2013 Solar Water Heaters Firm Conference, Bureau of Energy, Ministry of Economic Affairs, Tainan, Taiwan, Nov, 2013.

4. **P.S. Yen** and K.M. Chung. "Evaluation of solar water heater utilization status in Taiwan rural areas." 2013 Energy Conservation & Carbon Reduction, IC Broadcasting Company, Hsinchu, Taiwan, May, 2013.

5. **P.S. Yen**. "Statistical Application for Market Research." Department of Mathematics, University of Taipei, Taiwan, May, 2012.

Other Reports
1. **P.S. Yen**. "A Theoretical Study of Separation Data." Ph.D. Qualify Exam Report, Department of Epidemiology and Biostatistics, University of Illinois at Chicago, Sep 2021.

2. **P.S. Yen**. "Analysis of Ranking Statistical Methods." Project Report, Center for Clinical and Translational Science, University of Illinois at Chicago, Jun 2019.

DOCTORAL COURSE PROJECTS

Developed R package entitled `MixPoiRayExp`: An Expectation–Maximization Algorithm for Finite Mixture Models
Course: Computational Statistics   Aug 2020 – Dec 2020

Using Machine Learning Classification Methods and SMOKE Resampling Skills to Predict Disease Risk
Course: Health Analytics   Feb 2019 – Nov 2019

Ordinal Data Analysis: the Proportional Odds Model and the Partial Proportional Odds Model
Course: Generalized Linear Model   Apr 2019 - May 2019

Complete and Quasi-Complete Separation in Logistic Regression
Course: Generalized Linear Model   Mar 2019 - Apr 2019

Estimation for the Unknown True Concentration of Environmental Analytical Data: Two-Component Mix Model and Gamma Mixed Model
Course: Independent Study   Jan 2019 - Aug 2019

Estimation for the Unknown True Concentration of Environmental Analytical Data
Course: Linear Model   Oct 2018 - Dec 2018

Mixed-Effects Model for Detecting Disrupted Connectivities in Heterogeneous Data
Course: Linear Model   Oct 2018 - Dec 2018

VOLUNTEERING
EXPERIENCES

American Beiyinu Alumnae Foundation May 2021 – Present
President, Millennials Alumnae
- Led a volunteering team of 45 people responsible for the alumnae activities
- Provided monthly workshops, lectures, career consulting services, social clubs, mentoring programs for 1500 alumnae
- Mentored the business analytic group and provided marketing strategies for alumnae activities

American Red Cross – Wisconsin Region Oct 2016 - Feb 2018
Data Analyst
- Created statistical reports for the emergency response vehicle management

Taipei Lifeline Association Jul 2013 – Aug 2014
Data Analyst
- Used 2011-2014 phone call records from national suicide prevention lifeline to perform data analysis for identifying suicide trend

Asian Mental Health Association-Taipei Oct 2009 – Present
Data Analyst
- Provided data collection ideas for the Taiwan Ministry of Health and Red Cross Taiwan
- Executed crisis response training to the first responders, victims, and NGOs
- Assisted in 2009 Typhoon Moroak Project (the purpose of the project is to reduce the suicidal trend of victims during the 2010 Chinese New Year holiday)
- Developed models to compute suicide index for victims and demonstrated statistical applications to 82 NGO directors and the competent authorities