BIOGRAPHICAL SKETCH

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NAME: JIN, Haomiao

eRA COMMONS USER NAME (agency login):

POSITION TITLE: Provost/Viterbi PhD Fellow & PhD Candidate (Expected Graduation: May 2016)

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
Zhejiang University	BS	06/2009	Industrial Engineering
Zhejiang University	MS	03/2012	Industrial Engineering
University of Southern California	MS	05/2015	Operations Research
University of Southern California	PHD	05/2016 (Expected)	Industrial and Systems Engineering

A. Personal Statement

My primary research interests include studying and applying technology and modeling methods for improving chronic disease care, healthy aging, and health policy. I have a multidisciplinary background in industrial and systems engineering, operations research, health systems, and health services research.

I initiated a study that used predictive data analytics to investigate social and behavioral risk factors, diabetes symptoms, and other comorbidities to develop prediction models for comorbid depression among patients with diabetes. I applied the prediction models to explore optimal depression screening policymaking in primary care settings. The research proposal was the winner among 32 proposals in a clinical forecasting grant competition funded by the Autism Intervention Research Network for Behavior Health. The study was awarded Honorable Mention (among 59 submissions) in 2015 Annual Student Research Paper Contest of the CDC's Preventing Chronic Disease journal and the Best Poster Paper in the 2nd International Big Data and Health Analytics Conference in Singapore in 2014.

My research experience also included the study and evaluation of a technology-based intervention that exploited an innovative automated depression screening and monitoring system to facilitate collaborative depression care for patients with diabetes. I contributed to the comparative effectiveness analyses by developing a generalized propensity score method to compare 3 study groups and assessing acceptance and validity of the automated depression screening and monitoring system. In addition, I participated in an evaluation of a community-based computer and Internet training program for older adults. One coauthored paper received the Honorable Mention Award (among 67 submissions) in 2014 Annual Student Research Paper Contest of the CDC's Preventing Chronic Disease journal.

I am currently working on my doctoral dissertation, which includes three papers in predicting concurrent and future depressive episodes using predictive data analytics and applications in depression screening policymaking. Most recently, I begin a new research on projecting costs of Alzheimer's disease for Hispanic population.

I have experiences in using SPSS, R, SAS, and STATA, and programming with C, JAVA, and Python.

a. **Jin H**, Wu S, Di Capua P. A clinical forecasting model to predict comorbid depression among diabetes patients with application in depression screening policy making. Accepted for publication on Preventing Chronic Disease. 2015. (Honorable Mention Award in the 2015 CDC's Preventing Chronic Disease Student Research Paper Contest)

b. Wu B, **Jin H**, Vidyanti I, Lee PJ, Ell K, Wu S. Collaborative depression care among Latino patients in diabetes disease management, Los Angeles, 2011-2013. Prev Chronic Dis. 2014 Aug 28;11:E148. PubMed PMID: 25167093; PubMed Central PMCID: PMC4149319. (Honorable Mention Award in the 2014 CDC's Preventing Chronic Disease Student Research Paper Contest)

c. **Jin H**, Wu S. Developing depression symptoms prediction models to improve depression care outcomes: Preliminary results. Proceedings of the 2nd International Conference on Big Data and Analytics in Healthcare. Singapore. 2014. (Best Poster Paper Award in the 2nd International Big Data and Health Analytics Conference)

d. **Jin H**, Di Capua P, Wu B, Vidyanti I, Wu S. A generalized multilevel regression model using longitudinal data to predict depression among patients with diabetes. Invitation paper in minor revision for publication on Methods of Information in Medicine. 2015.

B. Positions and Honors

Positions and Employment

2012 - Provost/Viterbi PhD Fellow & PhD Candidate (Expected Graduation: May 2016), University of Southern California

Other Experience and Professional Memberships

2011 - 2012 Graduate Teaching Assistant, Zhejiang University
2013 - 2014 Graduate Research Assistant, University of Southern California
2014 - 2015 Graduate Teaching Assistant, University of Southern California

Honors

2007 National Undergraduate Scholarship, Chinese Ministry of Education
2008 National Undergraduate Scholarship, Chinese Ministry of Education
2009 Outstanding Bachelor's Theses Award, Zhejiang University
2012 Provost/Viterbi PhD Fellowship, University of Southern California
2014 Winner (among 32 proposals) of the Clinical Forecasting Pilot Grant Competition, funded by Autism Intervention Research Network for Behavior Health
2014 Best Poster Paper Award, 2nd International Conference on Big Data and Analytics in Healthcare
2014 Honorable Mention Award (among 67 Submissions), Annual Student Research Paper Contest of the CDC's Preventing Chronic Disease Journal
2015 Honorable Mention Award (among 59 Submissions), Annual Student Research Paper Contest of the CDC's Preventing Chronic Disease Journal

C. Contribution to Science

a. Approximately 30% of patients with diabetes are suffering from depression; however, 45% of them are undiagnosed and thus untreated, which negatively impact healthcare outcomes, utilizations and costs. This makes a model to predict depression among diabetes patients a valuable tool for providers to proactively assess depressive symptoms and identify those with depression. My study used predictive data analytics tools such as regularized regression, multilevel model, support vector machine, and random forest to investigate social and behavioral risk factors, diabetes symptoms, and other comorbidities to select strong predictors and establish functional relationships to predict comorbid depression among patients with diabetes. I applied the prediction models to explore optimal depression screening policymaking in primary care settings. Primary findings from my study are 1) using a small number of predictors, we can achieve good to excellent predictive accuracy in identifying depressed patients; 2) historical record of depression screening score is a strong predictor for future depression; and 3) based on the prediction models, a

depression screening policy can be derived to increase efficiency in managing patient population with depression and better prioritize the use of provider resources and time to deliver effective care for high-risk patients.

Papers published:

a. **Jin H**, Wu S, Di Capua P. A clinical forecasting model to predict comorbid depression among diabetes patients with application in depression screening policy making. Accepted for publication on Preventing Chronic Disease. 2015. (Honorable Mention Award in the 2015 CDC's Preventing Chronic Disease Student Research Paper Contest)

b. **Jin H**, Wu S. Developing depression symptoms prediction models to improve depression care outcomes: Preliminary results. Proceedings of the 2nd International Conference on Big Data and Analytics in Healthcare. Singapore. 2014. (Best Poster Paper Award in the 2nd International Big Data and Health Analytics Conference)

Manuscripts under review:

a. **Jin H**, Di Capua P, Wu B, Vidyanti I, Wu S. A generalized multilevel regression model using longitudinal data to predict depression among patients with diabetes. Invitation paper in minor revision for publication on Methods of Information in Medicine. 2015.

Manuscripts in preparation:

a. **Jin H**, Wu S, Di Capua P. Extending a clinical forecasting model to predict future occurrence of depression among diabetes patients with application in depression screening policy making. Target: Preventing Chronic Disease, manuscript in preparation. 2015.

Conference presentations:

a. **Jin H**, Wu S, Di Capua P. Depression among patients with diabetes: developing a screening policy based on clinical forecasting. AcademyHealth Annual Research Meeting; Jun 2015 (coming soon); Minneapolis, MN.
b. **Jin H**, Wu S, Di Capua P, Vidyanti I, Wu B. A longitudinal predictive tool to forecast depression among diabetes patients. Institute of Industrial Engineering Annual Conference; Jun 2015; Nashville, TN.
c. Wu S, **Jin H**. Comparing clinical forecasting models to predict depression among diabetes patients. 26th Annual Meeting of the Production and Operations Management Society; 2015; Washington, DC.
d. **Jin H**, Di Capua P, Vidyanti I, Wu S, Wu B. Developing depression symptoms prediction models to improve depression care outcomes. Annual Conference of the Institute of Operations Research and Management Science; 2014; San Francisco, CA.

2. Technology is a key component in improving primary care for patients with chronic illness and healthy aging. My work used industrial and systems engineering and statistical modeling methods to investigate and evaluate a technology-based intervention which exploited an innovative automated depression screening and monitoring system to facilitate collaborative depression care for patients with diabetes. I contributed to the comparative effectiveness analyses by developing a generalized propensity score method to compare 3 study groups and assessing acceptance and validity of the automated depression screening and monitoring system. In addition, I participated in an evaluation of a community-based computer and Internet training program for older adults. Primary findings are 1) automated telephone depression screening and monitoring can effectively improve depression care outcomes for patients with diabetes; 2) automated telephone depression screening may discourage individuals to disclose their depression symptoms but good validity can still be achieved by carefully setting threshold; 3) patients highly accept automated telephone depression screening if there are timely responses from care providers after reporting depression symptoms through the telephone; and 4) community-based computer and Internet training program impacts seniors' lives in many positive ways. Most recently, I begin a new research on projecting costs of Alzheimer's disease for Hispanic population.

Papers published:

a. Wu B, **Jin H**, Vidyanti I, Lee PJ, Ell K, Wu S. Collaborative depression care among Latino patients in diabetes disease management, Los Angeles, 2011-2013. Prev Chronic Dis. 2014 Aug 28;11:E148. PubMed PMID: 25167093; PubMed Central PMCID: PMC4149319. (Honorable Mention Award in the 2014 CDC's Preventing Chronic Disease Student Research Paper Contest)

Manuscripts under review:

a. Ramirez M, Wu S, **Jin H**, Ell K, Schulman SG, Sklaroff L, Guterman J. Diabetes patient perceived usability and long-term acceptance with ongoing technology-facilitated depression monitoring. Target: Journal of Medical Internet Research, manuscript in preparation. 2015.

Manuscripts in preparation:

b. **Jin H**, Wu S, Vidyanti I. Screening depression using automated telephone assessment: Impact of human element in human-computer interaction on self-disclosing sensitive information. Target: Journal of Medical Internet Research, manuscript in preparation. 2015.
c. **Jin H**, Wang F, Wu S, Duan N. Using generalized propensity score method to estimate the effects of interventions in a three-arm quasi-experimental clinical trial. Target: Health Services Outcomes & Outcomes Research Methodology, manuscript in preparation. 2015.
d. Wu B., **Jin H**., Jang J., Di Capua P, Vidyanti I, Wu S. Significant characteristics at baseline of lwo-income patients with diabetes in well controlled vs poorly managed A1C levels: The case of whole person care. Target: Diabetes Care, manuscript in preparation. 2015.
e. Wu S, **Jin H**, Vidyanti I, Chou C, Ell K, Lee P, Guterman J, Katon W. (2015). Comparative effectiveness of interventions to accelerate adoption of depression care management for diabetes patients: 6-month outcomes. Target: JAMA Psychiatry, manuscript in preparation. 2015.
f. Wu S, Li F, **Jin H**. Barriers and benefits of learning computers and internet among seniors and adults with disabilities. Target: Journal of Social Work. 2015.

Conference presentations:

a. Wu S, Ramirez M, **Jin H**. Patient acceptance of remote depression monitoring using automated technology. AcademyHealth Annual Research Meeting; Jun 2015 (coming soon); Minneapolis, MN.
b. Wu S, **Jin H**, Vidyanti I. Comparing self-disclosure of sensitive clinical information in human computer interaction. Institute of Industrial Engineering Annual Conference; Jun 2015; Nashville, TN.
c. Ramirez M, Wu S, **Jin H**. Perceived usability and acceptance of ongoing technology-facilitated depression monitoring. 4th International Conference on Human Factors and Ergonomics in Healthcare; 2015; Las Vegas, NV.
d. Wu S, **Jin H**. Cost-effectiveness of HIT-facilitated adoption of collaborative depression care for diabetes patient. Annual Conference of the Institute of Operations Research and Management Science; 2014; San Francisco, CA.
e. **Jin H**, Wu S, Vidyanti I, Chou C, Lee P, et al. Using propensity scores to evaluate an e-health technology for depression care. Annual Conference of the Institute of Operations Research and Management Science; 2013; Minneapolis, MN.

3. My early work during the Master program in China was about using operations research techniques to optimize production and improve supply chain. In specific, I investigated a mass customization strategy for cable production companies to better satisfy customer demands and save costs by using two-stage stochastic programming model.

Papers published:

a. **Jin H**, Wang Z, Chien C. A cut-to-order strategy for one-dimensional cable cutting. Journal of the Chinese Institute of Industrial Engineers (now Journal of Industrial and Production Engineering). 2012; 29(8):572-586.

D. Research Support

Completed Research Support

2014/03/01-2014/12/01
NA, Autism Intervention Research Network for Behavior Health
WU, Shinyi & DI CAPUA, Paul (PI)
Predicting Depression Outcomes to Facilitate Large-Scale Depression Management
Develop clinical forecasting models to predict depression courses and to identify predictors among patients with diabetes. Use the forecasting tool to improve depression screening policy making.
Role: Co-PI

2013/02/01-2013/09/01
NA, Community Technology Network
WU, Shinyi (PI)
Evaluation of San Francisco Broadband Technology Opportunities Program
Evaluate efficacy of the San Francisco Broadband Technology Opportunities Program (SF-BTOP), which aims to increase broadband Internet usage among seniors and adults with disabilities in order to improve their psychosocial well-being and health.
Role: Doctoral Research Assistant

2010/09/01-2013/08/01
1R18AE000054-01, US Department of Health and Human Services
WU, Shinyi (PI)
Care Management Technology to Facilitate Depression Care in Safety Net Diabetes Clinics
Develop an innovative depression care management technology to improve the adoption of evidence-based depression care, and test the intervention through a quasi-experimental, three-arm trial in a large urban public health system with diabetic patients to assess the clinical effectiveness and cost-effectiveness of alternative care delivery models.
Role: Doctoral Research Assistant