Sai Dharmarajan

Contact Information	2007 Medford Rd, Apt 253 Ann Arbor, MI 48104	662-380-3535 shdharma@umich.edu

Interests Survival analysis, competing risks, causal inference, correlated data analysis, hierarchical bayesian modeling, machine learning, statistical computing

Education

University of Michigan, Ann Arbor, MI

Ph.D., Biostatistics, *Expected:* Dec 2017

- Committee: Douglas E. Schaubel, Zhi He, John D. Kalbfleisch, Rajiv Saran
- Thesis: *Methods for Clustered Data and Causal Inference in the Competing Risks setting*

M.S., Biostatistics, May 2014

- Selected Coursework: *Adv. Computational Statistics(A), Survival Analysis(A+)*

The University of Mississippi, University, MS

M.S., Pharmaceutical Sciences (Emphasis in Pharmacy Administration), Dec 2011

- Relevant Coursework: *Drug Development and Marketing(A), Pharmaceutical and Healthcare Policy(A), Pharmacoeconomics(A)*

Birla Institute of Technology and Science, Pilani, Pilani, India

Bachelor of Pharmacy (Hons.), June 2009

Research Experience

Department of Biostatistics, University of Michigan
Graduate Research Assistant — Sep 2014 - Present
Supervisor: Douglas E. Schaubel, Ph.D

- Developed methods to evaluate center performance in the competing risks setting
- Developed semiparametric random effects models for analysis of clustered competing risks data - R package in development
- Developed an instrumental variable analysis method to estimate causal treatment effects on restricted mean survival time, and in the competing risks setting
- Assisted in development of statistical methods pertaining to analysis of multivariate survival / recurrent event data arising in the end stage renal disease setting

Kidney Epidemiology Cost Center, University of Michigan
Graduate Research Assistant — Sep 2012 - May 2016
Supervisor: Rajiv Saran, MD

- Estimated state-level variation of chronic kidney disease (CKD) prevalence and awareness in the United States from survey data using multiple imputation techniques
- Estimated county-level rates of kidney disease from survey data using multiple imputation and a bayesian spatial conditional autoregressive model
- Performed data mining and management tasks using SQL to aid in development of a Kidney Disease Registry using a large electronic medical record (EMR) database

Center for Pharmaceutical Marketing and Management, The University of Mississippi
Research Assistant — Jun 2010 - Dec 2011
Supervisor: Benjamin F. Banahan, Ph.D

- Conducted pharmacoepidemiology research using Medicare / Medicaid claims data.
- Responsible for study design, statistical analysis and report writing

Industry Experience

United States Food and Drug Administration (FDA)
Summer Intern — Jun 2016 - Aug 2016
Supervisors: Joo-Yeon Lee, Ph.D and Rima Izem, Ph.D

- Developed a sample size estimation method for case-crossover studies
- Demonstrated superiority of developed method over currently used methods using mathematical proofs and simulation studies
- Detailed findings in an internal report and presentation to Division Heads and the Director at the Office of Biostatistcs in Center for Drug Evaluation and Research

Acumen, LLC
Quantitative Research Analyst — Jan 2012 - Aug 2012
Supervisor: Emil Rusev, Ph.D

- Performed statistical analysis of Medicare Claims data to generate monthly reports of Medicare Part D prescription drug plan performance (Star Ratings) for the Centers for Medicare and Medicaid Services (CMS)
- Handled queries regarding monthly reports from insurers and CMS

Other Projects

Analysis of Multivariate and Categorical Data Course Project
Project: Application of Classification and Clustering Methods on NBA Shot Logs data

- Used latent dirichlet allocation to examine and identify beneficial offensive philosophies
- Developed an algorithm for player recommendation using various clustering methods (including non-parametric methods like dirichlet process gaussian mixture models)

Refereed Journal Publications

1. **Dharmarajan, S. H.**, Schaubel, D. E. and Saran, R. "Evaluating center performance in the competing risks setting: Application to outcomes of wait-listed end-stage renal disease patients." *Biometrics*, Published Online Jul 2017. DOI:10.1111/biom.12739.
2. **Dharmarajan, S.**, Morgenstern, H., Bragg-Gresham, J., Gillespie, B., Li, Y., Powe, N., Tuot, D., Banerjee, T., Rios-Burrows, N., Rolka, D., Saydah, S., and Saran, R. "Estimating State-level Awareness of Chronic Kidney Disease in the United States." *American Journal of Preventive Medicine*, 53(3):300-307, 2017.
3. Banerjee, T., Crews, D.C., Wesson, D.E., **Dharmarajan, S.**, Saran, R., Burrows, N.R., Saydah, S., Powe, N.R., and CDC CKD Surveillance Team. "Food Insecurity, CKD, and Subsequent ESRD in US Adults." *American Journal of Kidney Diseases*, 70(1):38-47, 2017.
4. **Dharmarajan, S.**, Bentley, J.P., Banahan III, B.F., and West-Strum, D.S. "Measuring Pharmacy Performance in the Area of Medication Adherence: Addressing the Issue of Risk Adjustment." *Journal of Managed Care Pharmacy*, 20(10):1057-68, 2014.

Technical Reports

1. Saran, R., Li, Y., Robinson, B., [et al, including **Dharmarajan, S.**]. "US Renal Data System 2014 annual data report: epidemiology of kidney disease in the United States." *American Journal of Kidney Disease*, 66(1 suppl 1):S1-S306, 2015.

Papers in Preparation

1. **Dharmarajan, S.**, Schaubel, D. E. "Improving the Efficiency of the Proportional Rates Model for Recurrent Events Analysis."
2. **Dharmarajan, S.**, Schaubel, D. E. "A semiparametric mixture component model with random effects for the analysis of clustered competing risks data."

Conference Presentations

- Joint Statistical Meetings, Baltimore, MD, July 2017
- ENAR International Biometric Society Meeting, Washington, D.C., Mar 2017
- ENAR International Biometric Society Meeting, Austin, TX, Mar 2016
- American Public Health Association Annual Meeting, Chicago, IL, Nov 2015
- American Society of Nephrology (ASN) Kidney Week, San Diego, CA, Nov 2015
- ASN Kidney Week, Atlanta, GA, Nov 2013
- Academy Health Annual Research Meeting, Seattle, WA, June 2011
- International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Annual Meeting, Washington, D.C, May 2012
- ISPOR Annual Meeting, Baltimore, MD, May 2011

Awards

University of Mississippi

William E. Farlow Fellowship Award — July 2011

- The Farlow Fellowship Award is presented to a student who has performed exceptionally and has presented a high quality thesis or dissertation proposal

University of Michigan

Rackham Conference Travel Grant — 2015, 2016, 2017

Service

University of Michigan

Student Faculty Liaison, Department of Biostatistics — Sep 2015 – June 2016

- Represent Graduate Students' interests in Faculty Meetings

Senior Student Member, StatCom (Statistics in the Community) — June 2013 onwards

- StatCom is a student run organization doing pro bono statistical consulting for non-profit entities that would not typically have access to statistical support

Computing Skills

C++, R, SAS, SQL, Stata, Python

Professional Memberships

International Biometric Society, American Statistical Association

References

Douglas E. Schaubel
Professor, Department of Biostatistics — Phone: 734-395-5992
University of Michigan — E-mail: deschau@umich.edu

Brenda Gillespie
Associate Director, Consulting for Statistics, Computing, Analysis and Research (CSCAR)
Research Associate Professor, Department of Biostatistics — Phone: 734-647-4609
University of Michigan — E-mail: bgillesp@umich.edu

Zhi He
Research Assistant Professor, Department of Biostatistics — Phone: 734-764-2279
University of Michigan — E-mail: kevinhe@umich.edu

Rajiv Saran
Associate Director, Kidney Epidemiology Cost Center — Phone: 734-763-1604
Professor, Internal medicine — E-mail: rsaran@med.umich.edu
University of Michigan

Additional references available upon request.