Sayali Phadke
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February 1st, 2017

Dear madam/sir,

This letter is to express my keen interest in working with Social and Decision Analytics Laboratory's Data Science for the Public Good Program during Summer 2017. A third year graduate student pursuing PhD in Statistics with a graduate minor in Social Data Analytics, my prior training and experience would allow me to bring a unique blend of methodological and computational skillset, an interdisciplinary perspective, and a keen desire to contribute towards policy research, to the project I undertake at SDAL.

My research lies at the intersection of causal inference and networks. I am specifically interested in exploring models that can estimate and test for spillover of a treatment via connected units. Such models are needed when the independence assumption widely held across statistical methods breaks down owing to interaction among social units. The possibility of conducting research under SDAL's Information Diffusion Analytics domain presents an exceptional opportunity. It would allow me to learn how diffusion of policy is studied, with concrete problem at hand. I would also hope to make methodological contributions to the work conducted at the lab.

I recognize that such a methodology can play an important role in studying policy, whether the beneficiaries are chosen randomly or by self-selection mechanisms. In some cases, the focus may be on measuring effect, and accounting for interference is necessary to accurately do so. For example, to study the effect of an alcohol prevention program amongst young adults, it is critical to account for friendship networks. In other cases, substantive interest may be in studying the propagation of treatment itself. For instance, in designing a system to disperse critical information to the citizens, knowledge of how it will spread can help achieve impact maximization and cost minimization. Finally, studying interference can also add to our understanding of evolution of the process itself. Considering peer connections can improve a researcher's understanding of school performance. I would appreciate a chance to work on a project that explores interdependencies among units to draw valuable insights about the process of interest.

I believe that my strengths and passions align well with the research conducted at the SDAL. I am committed to using my statistical expertise to studying real-world problems and bringing about tangible differences. This experience will add immensely to my technical abilities and experience with data-driven policy research. I sincerely hope to get an opportunity to discuss this further. My resume is appended below for reference. I look forward to a positive response from you.

Thanking you in anticipation

Sincerely,

Sayali Phadke

Sayali Phadke
Doctoral student
Pennsylvania State University

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EDUCATION AND AWARDS:

Department of Statistics, Pennsylvania State University	In progress
PhD Statistics with minor in Social Data analytics	
Research topic: Estimating Causal Effects while Accounting for Spillover via Networks	
Advisors: Dr. Kari Lock Morgan, Dr. David Hunter	2015 – 2017

Big Data Social Science: Integrative Graduate Education and Research Traineeship	
One of the six PhD students from across departments selected for this NSF-supported traineeship. Part of an interdisciplinary team of researchers being trained to meet the emerging big data challenges and develop methods to use big data in social science research	

Young India Fellowship (YIF)	**Fellow, Liberal Arts**	2012
India's first Liberal Arts and Leadership graduate program, in collaboration with University of Pennsylvania. One of the 57 Founding Batch fellows selected from all over the country. Gained a full scholarship worth 16000 USD.		

Bachelor of Arts from University of Mumbai, St. Xavier's College	**1st class with Distinction (Honors with 'A')**	2011
Specialization: Statistics-Economics with Honors in Statistics		

RESEARCH EXPERIENCE:

- **Papers**
  - **Working paper:** Phadke, S., & Desmarais, B. A. (2016). Network Effects in Field Experiments on Interactive Groups: Cases from Legislative Studies. Available here
  - **White paper:** Ramachandran, Kavil., Bhatnagar, Navneet.,Kancharla, Manjusha.,Phadke, Sayali. "Family Business Performance and Survival through Macroeconomic Crises - A Study on Post-Economic Liberalization Era in India" (White paper). Available here

- **Interference in Field Experiments**   **(Fall 2015 – Spring 2016)**
  Advisor: Dr. Bruce Desmarais; Political Science
    - Investigated how interference hypotheses can and should be used to analyze field experiments in which post-treatment interaction among networked subjects is suspected
    - Analyzed data from field experiments on Unites States State Legislatures to demonstrate the method

- **Causality and Counterfactual models**   **(December 2012 – May 2014)**
    - Assistance to the project 'Counterfactual Models for Causal Inference with Observational Data, and Applications to Social Sciences', at Applied Statistics and Computing Lab, Indian School of Business
    - Contribution to the project:
        - Performed literature review to understand material on adopting causal inference methods to social science research, especially using observational data
        - Made presentations based on topics such as potential outcomes framework, Directed Acyclic Graphs (DAGs), matching, instrumental variables, and regression methods, to the guiding faculty
        - Assisted a Ph.D. course in Causal Inference

CONSULTING AND WORK EXPERIENCE:

- **Data Science Summer Associate, Catalist LLC, Washington DC**   **(May 2016 – July 2016)**
    - Undertook research projects with the Analytics team of this progressive data services and analytics company
    - Investigated heterogeneous treatment effect models to improve microtargeting with Get Out the Vote initiatives
    - Constructed a separate model that uses spatial data to determine geographical units most likely to be accessible for the purpose of door-to-door canvassing
    - Worked with Catalist's national voter data, census data and other commercial data using SQL and R

- **Research Assistant, Applied Statistics and Computing Lab**   **(August 2012 – May 2014)**
  Indian School of Business, Hyderabad, India
    - Various assignments to provide methodological and data analysis support to faculty members, researchers and administrative units of Indian School of Business
    - Teaching support towards the Certificate Program in Business Analytics courses as well as PhD courses offered by the lab

- **Project consultant, Bharat Light and Power, New Delhi**   **(September 2011 – May 2012)**
    - Undertook the project as part of the Experiential Learning Module of YIF
    - Developed a business plan and market entry strategy for solar off-grid space
    - Prepared 25 years' financial projections by evaluating policy framework, technology and competition

- **Dean's office at the Indian School of Business**   **(April 2013 – May 2014)**
    - Analyzed student feedback, admissions data and placements data of MBA students
    - Presented performance indicators of various departments, to the Dean of the school
    - Prepared recommendations based on Net Promoter Score and characteristics of promoters & detractors

- **Ashoka Foundation: Innovators for the Public**   **(July 2013)**
    - Analyzed data collected by the Rural Innovation and Farming Program to analyze how mothers' work profiles affect incidence of malnutrition among mothers and young children
    - Worked with the global team to draw valuable insights which were instrumental in shaping Ashoka's two pilot programs

PRESENTED WORK:

- **Conference Presentations:**
    - 9th Annual Political Science Conference, June 2016 (Awarded a Travel Fellowship)
    Network Effects in Field Experiments on Interactive Groups: Cases from Legislative Studies
    - Joint Statistical Meeting, August 2016
    Testing for Network Effects in Field Experiments: Examples from Legislative Studies

- **Poster Presentation:**
    - Big Data Social Science IGERT Poster Session, March 2016
    Testing for Network Effects in Field Experiments: Examples from Legislative Studies

TEACHING EXPERIENCE:

- **Data and Methods Today: An Interdisciplinary Statistician's Point of View (December 2016)**
    A talk presented to the analytics team at Magic 9 Media and Consumer Knowledge Pvt. Ltd., Mumbai, about big data and the statistically accurate way of analyzing it

- **Grader, STAT 200, Pennsylvania State University**   **(Fall 2014)**
    - Conducted problem-solving labs for 160 students of the 'Elementary Statistics' course
    - Contributed to the shared office hours for introductory statistics courses across university

- **Teaching Assistant, Certificate Program in Business Analytics**   **(July 2013 – June 2014)**
    - Post-graduate program at the Indian School of Business enrolled working professionals
    - Assisted the faculty of various Statistics and Operations Research courses in grading, conducting tutorials and addressing student queries
    - Designed the entrance test for students applying to this program

- **Content development, Indian School of Business**   **(July 2013 – September 2013)**
  - Developed audio-visual modules on Descriptive Statistics and Probability & Sampling Distributions for Online Statistics Tutorials created by the Applied Statistics and Computing lab

- **Teaching learning-disabled children, NGO 'Khushi', Mumbai   (July 2008 – June 2009)**
  - Designed activities to teach basic mathematical concepts
  - Conducted linguistic and general learning activities in absence of the Special Educator

EXTRA-CURRICULAR ACTIVITIES:

- **Literature**
  - Write in Marathi (mother tongue) since childhood and a book of own poems 'Gulabachaa Rajwada' [The palace of Rose] was published in the year 2000
  - Wrote fortnightly columns for a youth oriented Marathi daily 'Yuva Sakal' in the year 2003 and contributed regularly to other Marathi newspapers
  - Won Manikratna award for Excellent Performance in the Literary field, in class 9. Only student to get the award from 50,000 students across 52 branches of the high school
  - Recently started blogging at www.sayaliphadke.wordpress.com

- **Dance**
  - Trained in Kathak (Indian Classical dance form) for 20 years and graduated with first class from Akhil Bharatiya Gandharva Mahavidyalaya in May 2008
  - Performed in India as well as in London, Netherlands, Qatar and Sri Lanka

- **Leadership positions**
  - Organized annual Indian music festivals featuring professional as well as student artistes as President (2016) and Treasurer (2015) of the Society for Indian Music and Arts at Penn State University
  - Founded (as President) *Nritya*, an Indian dance organization at Penn State University in Fall 2016
  - Played a key role in reviving the oldest college level Marathi literary association in Mumbai; the Marathi Vangmay Mandal of St. Xavier's college
    - Led a core committee of 15 people as the General Secretary of the association during 2009-2010
    - Conducted several events as the Head of the Dramatics department for two consecutive years

SKILLS:
- Programming: R (Proficient), SQL (Advanced), Python (Preliminary)
- Statistical software: STATA, SPSS, Minitab (Advanced)
- Simulation: @Risk, Simio (Preliminary)
- Languages: Fluent in English, Marathi and Hindi