

# Shamindra Shrotriya

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## Education

### Carnegie Mellon University

Ph.D. in Statistics & Data Science

Pittsburgh, PA

Dec. 2022 (Exp.)

M.S. in Statistics & Data Science

2020

### University of California, Berkeley

Berkeley, CA

M.A. in Statistics

2016

### University of New South Wales

Sydney, NSW

BCom (Actuarial Science & Finance)

2007

## Technical Skills

**Coursework:** Convex Optimization, Adv. Statistical Inference, Adv. Probability Theory, Deep Learning, Statistical Machine Learning.

**Proficient:** R, Python, PyTorch/Tensorflow, SQL (Redshift/SQL Server/PostgreSQL), Git/Github, LaTeX

**Competent:** Make, SAS, Unix, Julia, JAX

## Publications

### PAPERS

- Bong, H., Li, W., Shrotriya, S., & Rinaldo, A. (2020). Nonparametric Estimation in the Dynamic Bradley-Terry Model. In *AISTATS (Online)*.
- Li, W., Shrotriya, S., & Rinaldo, A. (2022). sup-norm Bounds of the MLE in the BTL Model under General Comparison Graphs. *Uncertainty in Artificial Intelligence (UAI)*.
- Dalmasso, N., Shrotriya, S., & Reinhart, A. (2019). Predictive Inference of a Wildfire Risk Pipeline in the United States. *NeurIPS 2019 Workshop on Tackling Climate Change with Machine Learning*.

### UNDER REVIEW (SUBMITTED)

- Shrotriya, S., & Neykov, M. (2022). Revisiting Le Cam's Equation: Exact Minimax Rates over Convex Density classes.
- Shrotriya, S., & Neykov, M. (2022). Uniform Location Estimation on Convex Bodies.
- Shrotriya, S., & Neykov, M. (2022). Adversarial Sign-Corrupted Isotonic Regression.
- Fogliato, R., Shrotriya, S., & Kuchibhotla, A. K. (2021). *maars: Tidy Inference under the "Models as Approximations" Framework in R*.

### COMPETITIONS

- Bong, H., Li, W., & Shrotriya, S. (2019). Efficient Estimation of Distribution-Free Dynamics in the Bradley-Terry Model. *Carnegie Mellon Sports Analytics Conference (Reproducible Research Winner)*.
- Barter, R., & Shrotriya, S. (2016). Integrated Data Analysis for Early Warning of Lung Failure. *ODBMS.org (Geisinger Competition Winner)*.

## Industry Experience

### freelancer.com

Team Lead, Data Science Infrastructure

Sydney, Australia

2014 - 2015

- Designed and implemented a prototype of the new A/B testing framework.
- Co-designed and administered the Extract-Transform-Load (ETL) process written in Go and AWS Redshift.
- Co-designed the internal metrics monitoring dashboard.

### Quantum Consulting

Data Scientist

Sydney, Australia

2012 - 2014

- Led the end-to-end development of the behavioural ‘lifestage’ customer classifier for the entire 7 million Woolworths Supermarket customerbase.
- Led the data-driven electronic marketing strategy for Woolworths Life Insurance which included developing scoring models (GLMs) and conducting A/B tests to optimise response rates.
- Co-designed and developed the National Australia Bank Online Retail Sales Index (NORSI).

## United Nations - International Labor Organization

Microinsurance Fellow

Pune, India

2011 - 2012

- Selected as microinsurance fellow based on industry experience and academic merit.
- Wrote a report on the best actuarial pricing practices to be undertaken by microinsurance organisations.

## PwC

Senior Actuarial Consultant

Sydney, Australia

2007 - 2011

- Built visualization dashboards for monitoring key risk metrics for Insurance Australia Group, Australias’ largest private general insurer.
- Developed key reporting metrics used by Qantas airlines to assess key drivers and trends behind their Qantas Frequent Flyer Program (the largest customer loyalty program in Australia).

## Presentations

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### useR! 2021: The R Conference (Spotlight Talk)

Virtual

maars: Tidy inference under misspecified statistical models in R

2021

### NeurIPS 2019 Climate Change Workshop (Spotlight Talk)

Vancouver, BC

Predictive inference of a wildfire risk pipeline in the United States

2019

## Honors and Awards

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### rstudio::global(2021) Diversity Scholar (RStudio)

2021

### NGC Wildfire Research Scholar (American Australian Association)

2020

### TA of the Year (Carnegie Mellon University)

2020

### CMSAC Best Paper Award (Carnegie Mellon University)

2019

### NeurIPS Climate Change Workshop Travel Award

2019

### Outstanding Graduate Student Instructor (University of California, Berkeley)

2017

### Elizabeth Scott Memorial Award (University of California, Berkeley)

2016

### Best Paper and Competition Winner (Geisinger Health Collider Project)

2016

## Software

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### maars R Package

2021

Co-creator of the R package to implement tidy inference under the ‘Models as Approximations’ framework. Joint work with Riccardo Fogliato and Arun Kumar Kuchibhotla.

### Iterative Random Forests (iRF) Python Package

2017

Co-Developer of Python package to detect predictive and stable high-order interactions.

## Teaching Experience

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### Statistical Computing - CMU 36-350 (head-TA)

With Prof. Ryan Tibshirani (Fall 2021), Prof. Mohamed Farag (Spring 2020), Prof. Peter Freeman (Spring/Fall 2019)

### Intermediate Statistics - CMU 36-700 (head-TA)

With Prof. Larry Wasserman (Fall 2018)