

Shamindra Shrotriya

Department of Statistics and Data Science, Carnegie Mellon University

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Education

Carnegie Mellon University

Ph.D. in Statistics & Data Science

Pittsburgh, PA

Dec. 2022

M.S. in Statistics & Data Science

2019

University of California, Berkeley

M.A. in Statistics

Berkeley, CA

2016

University of New South Wales

BCom (Actuarial Science & Finance)

Sydney, NSW

2007

Technical Skills

Coursework: Convex Optimization, Adv. Statistical Inference, Adv. Probability Theory, Deep Learning, Statistical Machine Learning, Data Structures and Algorithms.

Proficient: R, Python, PyTorch/Tensorflow/JAX, SQL (PostgreSQL/Redshift/SQL Server), Git/Github, pandas, scikit-learn, LaTeX

Competent: Make, SAS, Unix, Julia

Publications

PAPERS

1. Bong, H., Li, W., Shrotriya, S., & Rinaldo, A. (2020). Nonparametric Estimation in the Dynamic Bradley-Terry Model. In *AISTATS (Online)*.
2. 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)*.
3. Dalmaso, 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)

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

COMPETITIONS

1. 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)*.
2. 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.

Quantium 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

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

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

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

Statistical Computing - CMU 36-350 (head-TA)/ Advanced (graduate) Statistical Computing - CMU 36-750

With Prof. Alex Reinhart, Prof. Ale Rinaldo, Prof. Ryan Tibshirani.