

Ardalan Mirshani

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RESEARCH INTERESTS	Machine Learning, Functional Data Analysis, High Dimensional Data Analysis, Big Data, R shiny app, Data mining, Finance, Marketing ,Biostatistics	
EDUCATION	Pennsylvania State University , University Park, PA, US Ph.D., Statistics , from 2014, <i>Expected</i> : Spring or Summer 2019 GPA: 3.92/4 <ul style="list-style-type: none">• Thesis Topic: <i>Regularization Methods in Functional Data Analysis</i>• Advisors: Matthew Reimherr Sharif University of Technology , Tehran, Iran M.S., Mathematics , 2013 GPA: 17.89/20 <ul style="list-style-type: none">• Topic: <i>Extending Hoeffding's Inequality for Supermartingales</i>• Advisor: Bijan Z.Zangeneh Khajeh Nasir University of Technology , Tehran, Iran B.S., Electrical Engineering , 2011	
INTERNSHIP	Novartis , Cambridge, MA, Summer 2018 Implementing multiple modularized R Shiny apps for analyzing and visualizing clinical and biomarker big data (around 1.5 million observations) in NIBR oncology center and consulting to other projects. Reading big data from server and modularizing the apps were the two important challenges. (LinkedIn/Recommendation).	
VISUALIZATION EXPERIENCE	RAAVI, Founder and Developer Raavi is a Shiny web app (interactive website with back-end in R Statistical language) for visualization of high school and university grades data. It was a great experience for me on both UI/UX and Server part. Working with my own Shiny Server and linux system, modularizing shiny app, combining Shiny UI with WordPress styles, improving performance with Profvis package and combining many great visualization packages in R like ggplot, plotly, shinywidgets, rhandsontable, JS packages and many more empowered me to learn and deal with many challenges in writing a complicated shiny app.	
CONSULTING EXPERIENCE	Statistical Consulting I , Applications of statistical methods in the consulting environment with emphasis on written and oral communication skills, Spring 2016 Statistical Consulting II , Practical consulting and communication skills with focus on participating in the online discussion, Fall 2016	

PROGRAMMING
LANGUAGE AND
PLATFORMS

**R, Shiny, Rmarkdown, R Package, Rcpp, sparklyr
Tidyverse, Leaflet, trelliscopejs, Profvis**

Python, Minitab, Tableau, Excel, SAS

SQL, postgresSQL, Spark, Git, Github, Linux Server, Shiny Server

HTML, CSS, JS, WordPress

Latex, Overleaf, Onenote, Microsoft Team, Slack

PROJECT
EXPERIENCE

- *Fire Forest*, Best model with comparing LDA, QDA and logistic regression on Fire Forest Data Set, 2015
- *Student Performance*, Best model with comparing LDA, QDA, Decision Trees, K-means, KNN and K-center clustering on student performance Data Set, 2015
- *Diabets*, Running a Bayesian Elastic Net with CI criterion on a diabets data set for variable selection, 2016
- *Lotka-Volterra Network*, Running a Particle MCMC algorithm on a stochastic biochemical network and finding the best number of particles. The running time was challenging in resampling steps, 2015
- *Abandon Cropland*, Exploring the factors are related to rate of abandoned cropland in the United States, Part of a project in geography department, 2015
- *Gas mileage*, Gas mileage of cars with highly multicollinear covariates, Fall 2014
- *DOE on cooking rice*, Designing and analyzing an experiment to see which recipes are effective for cooking rice with WMSE method, Spring 2015
- *Wine Quality*, GLM for relationships between the Wine quality and the chemical attributes, Summer 2015

RESEARCH
EXPERIENCE

Adaptive Function-on-Scalar Smoothing Elastic Net (AFSSSEN) for High Dimensional Data, In a function-on-scalar linear model with a large number of scalar predictors, I provided a new methodology for controlling the sparsity and smoothness of the estimates separately with using a smooth version of Elastic Net regularization method on the model. This research was motivated by longitudinal genetic association study and micro biome data set, 2017

- **R Package**: A very fast coordinate descent algorithm (C++ backend) ([On Github](#))

Privacy in Functional Data Analysis, A. Mirshani, M. Reimherr, A. Slavkovic, On the Existence of Densities for Functional Data and their Link to Statistical Privacy, 2016. I Developed an extensive theory for achieving Differential Privacy with functional data or function valued parameters more generally. We demonstrate how even small amounts of over smoothing or regularizing can produce releases with substantially improved utility(*submitted to AoS*, [Arxiv](#)), 2016

- **Application: Privacy for Facial Data** ([Shiny app](#))
- **R Package** ([On Github](#))

TEACHING
EXPERIENCE

Lecturer:

- Probability, statistics and Calculus , Tehran Virtual University, Iran, 2008

Teaching Assistant:

- Applied Statistics (STAT 500), PSU, FALL 2017,2016,2015, Summer 2016
- Intermediate Applied Statistics (STAT 460), PSU, FALL 2017
- Regression Methods (STAT 501), PSU, Summer 2017, Spring 2017
- Elementary Statistics (STAT 200), PSU, Spring 2016
- Introduction to Stochastic Models (STAT 416), PSU, Fall 2015
- Applied Statistics in Science (STAT 319), PSU, Spring 2015
- Probability & Mathematical Statistics (STAT 414), PSU, Fall 2014
- Calculus I, Sharif University of Technology, Iran, 2011
- Algebra I, K.N. Toosi University, Iran, 2010
- Probability and Statistics, K.N.Toosi University, Iran, 2007

AWARDS

Best Poster Presentation Award, 2017 Rao Prize Conference, May 2017

Silver Medal, 35th Iranian National Mathematics Competition for university Students, 2011

Ranked 8th, among nearly 8,000 participants in the National University Entrance Exam for M.Sc. in Mathematics , 2011

Top ten, in Mathematics competition held among undergraduate university students who studied in Tehran By Iran University of Science and Technology , 2008

NONACADEMIC
SERVICE

Story of a Town, a short film about vibes of lives ([Link](#))

Nostalgia, a short film about the Iranian students in US ([Link](#))

A dancing foot bring the whole town to joy, a short film about migration ([Link](#))

Cafe Cinema, hosting a project aims to review a number of outstanding Iranian new wave movies, 2015

REFERENCES

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