Rahul, Ph.D.

BlackRock, Gurgaon, India, 122002

+91 9599109605 • katyayan.rahul@gmail.com • http://r2rahul.github.io/
in.linkedin.com/in/r2rahul/

Summary

I am Ph.D. in *Applied Mathematics from the Department of Applied Mathematics at the University of Waterloo, Canada.* I have 8+ years of combined research and industry experience in the predictive model building, high performance scientific computing, and data analytics. Additionally, I have taught graduate-level mathematics courses at the University of Waterloo.

Education

Doctor of Philosophy **2012**
Department of Applied Mathematics, University of Waterloo, Canada

Certificate in University Teaching **2011**
Center of Teaching Excellence, University of Waterloo, Canada

Master of Technology **2008**
School of Computational and Integrative Sciences, Jawaharlal Nehru University, India

Master of Science **2005**
Department of Electronic Sciences, University of Delhi South Campus, India

Bachelor of Science **2003**
Electronic Sciences, Sri. Aurobindo College, University of Delhi, India

Experience

Data Science Associate **Sep, 2015 - present**
Blackrock Services India Pvt.Ltd, Gurgaon, India
Role Description: I am applying machine learning and artificial intelligence to create new investment insights. Before, I was part of consultancy team where I used data science techniques to advice on the client problems.

Research Scientist **Jan, 2015 - Aug, 2015**
Data Science Practice, Impetus Infotech Pvt. Ltd., Noida, India
Role Description: I was responsible for developing predictive models for clients to improve their business outcomes. Also, I was responsible for training and development of team members.

Postdoctoral Research Fellow (Research Scientist) **Feb, 2014 - Dec, 2014**
Department of Biochemistry, McGill University, Montreal, Canada
Role Description: I was responsible for developing model for the breast cancer using distributed computing and convex optimization methods.

Sessional Lecturer **Sep, 2012 - Dec, 2013**
Department of Applied Mathematics, University of Waterloo, Waterloo, Canada

Graduate Teaching Assistant **2008 - 2012**
Department of Applied Mathematics, University of Waterloo, Waterloo, Canada

Technical and Personal skills

Programming Languages: Proficient in: Python, MATLAB, R, LaTeX, Octave
Also ability with: C, JavaScript, Fortran 77, Shell Scripting, Julia, pySpark

Literate Programming Tools: R Shiny Apps, R Knitr, IPython, Markdown, lintr, Make (Build Tool)

Visualization Tools: ggplot2, ggvis, leafletR, Circos, Inkscape, Xfig, dimple.js, Bokeh

Version Control Tools: Git, SVN, SourceTree, Sumatra (Provenance Tool)

Platforms: Windows, Linux, Scientific Computation using MapReduce Programming Paradigm

Educational Tools: *Clickers* an audience response system, *Open-Sankore* an interactive whiteboard software

General Business Skills: Good verbal and written communication skills, ability to work in multicultural environment, enjoys working in multidisciplinary team, can work independently, good in mentoring and team building skills

Project Management Tools: Jira, Confluence

Selected Projects

R package *expdata*
Tools: R, R Shiny, Source Code: https://github.com/r2rahul/expdata *Independent Project*
Description: A light weight exploratory data analysis tool using data.table in R.

A Dashboard to Visualize Change in Financial Terms at Two Time Points
Tools: R, R FlexDashboard *BlackRock*
Description: A dashboard to visualize difference in financial metrics at two different time points.

Finding Residential Mortgage Cohorts for the efficient Downstream Analysis of Cash Flow
Tools: Python, R, PySpark *BlackRock*
Description: The goal was to create cohorts of the loan, which share similar characteristics. We utilised pySaprk and Principal Componet Analysis (PCA) create loan cohorts.

Real time Recommender System using Singular Value Decomposition (SVD)
Tools: R, Shiny App, (1) Source Code: https://github.com/r2rahul/fastSVDrevisions *Impetus*
Description: The aim was to build a real-time recommendation system based on the web browsing history. Next, we implemented the Brand, M (1) algorithm to build a recommendation system. Finally, we built an R shiny Application to showcase the recommendation system.

Modeling Risk due to Natural Catastrophes for the Insurance Premium Estimation
Tools: Python, Cython *Impetus*
Description: The objective was to validate the risk model built on the MapReduce programming paradigm. I improved the model using high precision numeric algorithms, converting codes into Cython, and removing redundancy in the algorithm.

Building a Co-Expression Network of Proteins and Identification of Functional Hub Proteins
Tools: R, R igraph, Circos *University of Waterloo*
Description: The aim was to build a co-expression network using sparse data and identify hub proteins. We used Sparse Partial Correlation Estimation (SPACE) method to build the network. Finally, we identified the hub proteins using degree centrality. Source Code: `https://bitbucket.org/r2rahul/sparsecorrelation`

Modeling Metabolic Reprogramming in Cancer Cells using Convex Optimization Methods
Tools: R, R Bioconductor, MATLAB *McGill University*
Description: The goal was to build a model to study the combined effects of gene expression and metabolic changes in the cancer cells. The model is formulated as the convex optimisation problem and we used parallel computing to solve the problem.

Additional Training and Certifications

Selected Massive Open Online Course Certifications

Social and Economic Networks: Models and Analysis **November, 2015**
Coursera

Scalable Machine Learning (Apache Spark) **August, 2015**
edX

Linear and Integer Programming **December, 2014**
Coursera

Statistical Learning **April, 2014**
Stanford Online

Additional Training

Participated in High Performance Computing Workshop Series **2014**
McGill University

Certificate in MATLAB **August, 2005**
IIT Kanpur

Certificate in Japanese **December, 2004**
Reiyukai

Additional Information

Link of Complete Academic CV: `http://tinyurl.com/nddsnfe`
Teaching Samples: `http://tinyurl.com/ppxobvd`
GitHub Account: `https://github.com/r2rahul`
Selected Visualization using dimple.js: `http://bl.ocks.org/r2rahul`