

RESUME

Mohsen Sharifi Tabar

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Education

- PhD in Mathematics, [Sharif University of Technology](#) and Visiting [Université de Versailles Saint-Quentin-en-Yvelines](#) (2004–2010)
- M.S. in Mathematics, Sharif University of Technology (2003–2004)
- B.S. in Mathematics, Sharif University of Technology (1998–2003)

Awards and Honors

- First Prize in IMC (International Mathematical Competition), Romania, 2003
- First rank in Mathematical Competition held by Iranian Mathematical Society, 2003
- First rank in 7th & 8th University Student's Olympiad, Iran, 2002 & 2003
- First rank in qualifying exam for MS, Iran, 2002
- Silver Medalist, Physics Olympiad, Youth Scholar Club, 1997

Publications

Title	Cited	Year
<p>Modified Keller-Segel system and critical mass for the log interaction kernel</p> <p>V Calvez, B Perthame, M SHARIFI TABAR</p> <p>Stochastic Analysis and Partial Differential Equations, Contemporary Mathematics (429), American Mathematical Society, 45–62.</p>	<u>47</u>	2006
<p>Volume degeneracy of the typical cell and the chord length distribution for Poisson-Voronoi tessellations in high dimensions</p> <p>K Alishahi, M Sharifitabar</p> <p>Advances in Applied Probability 40 (4), 919-938</p>	<u>15</u>	2008
<p>On explicit representation and approximations of Dirichlet-to-Neumann semigroup</p> <p>H Emamirad, M Sharifitabar</p> <p>Semigroup Forum 86 (1), 192-201</p>	<u>10</u>	2013
<p>Continuous neural network with windowed Hebbian learning</p> <p>M Fotouhi, M Heidari, M Sharifitabar</p> <p>Biological cybernetics 109 (3), 321-332</p>	<u>7</u>	2015
<p>Eigenvalue estimation of the exponentially windowed sample covariance matrices</p> <p>E Yazdian, S Gazor, MH Bastani, M Sharifitabar</p> <p>IEEE Transactions on Information Theory 62 (7), 4300-4311</p>	<u>2</u>	2016
<p>One-dimensional chemotaxis kinetic model</p> <p>M Sharifi tabar</p> <p>Nonlinear Differential Equations and Applications NoDEA 18, 139-172</p>	<u>2</u>	2011
<p>Derivation of a Formula of Blaschke and Petkantschin using Probabilistic Ideas</p> <p>M Sharifitabar</p> <p>arXiv preprint arXiv:2002.08779</p>	<u>link</u>	2020

Summary of Qualifications

- Extensive experience in academia, including teaching and research in applied and pure mathematics and supervising graduate students.
- Solid background in broad areas of mathematics, particularly in probability, statistics, stochastic processes, mathematical modeling and simulation, differential equations and neuroscience.
- Strong theoretical and practical knowledge in Machine Learning algorithms and Deep learning and their implementation.
- Strong analytical and problem-solving skills.
- Expert developer with programming languages (Scala, Python, Java, GoLang, ...) and BigData stacks using Apache ecosystem (Spark, HDFS, Kafka, HBase, ...).
- Languages: fluent in English & Persian and elementary level in French and Arabic.

Expertise

Data Engineering/Analytics Tools/Languages:

- Languages: Scala, Java, Python, R
- Data flow: Apache Spark, Kafka, Sqoop
- Data formats: Parquet, Avro, Protobuf
- Data store: HDFS, HBase, MongoDB, PostgreSQL, Amazon S3
- Authorization: Kerberos, Apache Ranger
- Orchestration and Visualization: Apache Airflow and Atlas
- Notebooks: Zeppelin, Jupyter

Service & Software Development Tools/Languages:

- Languages: Scala (akka), GoLang, PHP (Laravel), Python (Flask), JavaScript
- Version control and CI/CD: Git, GitLab, Bash scripts, Linux commands
- SQL (syntax, MySQL, PostgreSQL)
- Agile methodologies/tools and TeamWork: Scrum, ClickUp, Trello, Jira
- Orchestration and Containers: Kubernetes, Docker
- Monitoring and Alerting: Prometheus, Grafana

Machine Learning (and Related):

- Similarity and knn using LSH (Random Projection, MinHash, ...)

- Deep learning (Convolution layers, Multi Layer Perception, Transformers, Generative Adversarial Nets, Graph Neural Nets, Regularization, Dropout, Residual, ...)
- Clustering and Classification algorithms (including Graph Spectral Clustering)
- Reinforcement Learning
- Optimization (Gradient descent, Numerical methods, ...)

Miscellaneous:

- Mac Numbers, Microsoft Excel and Google Sheets and drawing charts and graphs
- LaTeX for typesetting professional and complex structured documents
- Matlab and SciLab to perform numerical simulations
- Advanced sound editing (Audacity, ...)

Professional Experiences

- **Senior Research Scientist** (May. 2022 — Now): [Oncinfo Lab, University of Texas Health Science Center at San Antonio, Texas-USA](#).
 - Developing a very helpful utility package for the lab software projects
 - Helping the lab members to improve their software developing skills
 - Analyzing and working with multiple biological datasets related to Rapamycin, Obesity, Alzheimer, ... and of type mRNA methylation, Whole Genome Sequencing, Whole Exome Sequencing, single-cell and bulk RNA-Seq.
 - Developing some deep learning (graph based) methods to analyze genomic data
- **Assistant Professor** (Feb. 2018 — April. 2022) and **Lecturer** (2010 — 2018): Mathematical Science Department at [Sharif University of Technology](#), Tehran-Iran.
 - Supervising 7 graduate students
 - Teaching the following courses for graduate and undergraduate students:
 - Numerical Analysis II, 2016, 2021
 - Advanced Numerical Analysis, 2019, 2020
 - Linear Algebra, 2020
 - General Math II, 2020
 - Computer Technology (Big Data), 2019
 - Elementary Statistics, 2019
 - Real Analysis, 2013, 2016, 2019
 - Stochastic Processes, 2018
 - ODE, 2010, 2018, ODE Theory, 2017

- Numerical Analysis I, 2012, 2016
 - Applied Stoch. Proc., 2015
 - Analysis II, 2015
 - Probability Theory, 2005, 2015
 - PDE Numerics, 2012, 2013, 2014
 - PDE, 2013
 - Mathematical Writing, 2011
- **Senior Data Engineer** (March 2020 — June 2021): [CafeBazaar](#) (the largest Android app store and video platform in Iran with ~40 million users), Tehran-Iran.
- Developing and Ownership of a critical service for registering devices with *GoLang* (using *Postgres* as database)
 - Optimizing existing *Spark* jobs (make some of them 3 times faster)
 - Developing many *Spark* applications to process variety of user data and build their profile (to feed recommender systems and BDA analysts) including suitable use of *UDFs* and *UDAFs* with *Scala*
 - Management and Ownership of the full DAG of user profiling (using *AirFlow*)
 - Developing *Spark Streaming* services to load data from *Kafka* and process and write them to *HDFS*
 - Contribute to develop a service (in *GoLang*) for online processing of some parts of user data with *MongoDB* as database and produce the results to *Kafka*
 - Developing a library to easily work with the existing data stack and send data flows to Atlas and the job metrics to *Prometheus*
 - Working with *Docker* containers and *Kubernetes* to deploy HA services
 - Helping other employees to learn and improve and develop with *Spark* & *Scala*
- **Data Scientist & Engineer** (Jan. 2018 — Jan. 2020): [Shomara](#), Tehran-Iran.
- Setting up an *Spark+Hadoop+HDFS* cluster.
 - Transform and store a stream of data which was more than *1TB (6 billion records) per day*, on *HBase* (to fast query users and feed the following algorithm).
 - Designing a complex method and algorithms to cluster users (including a self-implementation of *MinHash* algorithm).
 - A paper about the designed algorithm (to be submitted).
- **Postdoctoral Researcher** (Jan. 2011 — Mar. 2014): [IPM](#) (Institute for Research in Fundamental Sciences), Tehran-Iran.
- Researching in the area of Neuroscience.

Miscellaneous and Personal Experiences

- Building a heavily developed *Telegram Bot* for an educational institute with a full set of features using *PHP* (and rewriting it with *grpc* and *Scala (akka)* and again rewriting it with *GoLang* and *go* routines).
- A simple automation system to manage tasks of that institute using *Google Scripts* and *Google Forms* and *Google Sheets* (as data storage).
- An *HTML+CSS* client with a small *PHP* server to simulate some basic functionalities of *Telegram bots*, in the absence of *Telegram servers*.
- Building some websites including [my personal webpage](#) using *WordPress*.
- Developing two professional *LaTeX* styles, one for books of a publishing institute and the other for *SUT theses*.
- Developing two clients for a chat system, an applet with *Java* and an application using *VisualC*, 1999–2000.