

MOHSEN TABIBIAN

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RESEARCH INTERESTS

Statistical Modeling | Machine Learning | Neural Networks
Applied Mathematics | Predictive Analytics

EDUCATION

- Doctor of Philosophy (Ph.D.) in Mathematics Aug. 2016 – Apr. 2021
University of Montana, Missoula, MT
Dissertation: “*Extending Bootstrap Aggregation of Neural Networks for Prediction with an Application to COVID-19 Forecasting*”, Advisor: Brian Steele
- Master of Science (M.S.) in Data Science Aug. 2016 – Nov. 2020
University of Montana, Missoula, MT
Project: “*LSTM Models to Predict US Stock Market Prices*”, Advisor: Brian Steele
- Master of Science (M.S.) in Mathematical Statistics Sep. 2007 – Feb. 2010
Tarbiat Modares University, Tehran, Iran
Thesis: “*Application of Some Bootstrap Methods in Linear Regression*”,
Advisor: S. Mohammad E. Hosseini-Nasab
- Bachelor of Science (B.S.) in Statistics Sep. 2003 – Feb. 2007
Islamic Azad University of Arak, Arak, Iran
Graduated with highest honors as Valedictorian.
Ranked 2nd out of 100+ participants in the Math Competition in 2006.

TEACHING EXPERIENCE

Graduate Teaching Assistant (Full-time) Aug. 2016 – Apr. 2021
University of Montana, Missoula, MT

- Independently taught courses: Computer Data Analysis, Applied Calculus, Introduction to Statistics, Probability and Linear Math.
- Developed materials and assessments. Delivered lectures and provided tutoring. Utilized statistical software to enhance engagement. Graded assignments and exams provided feedback. Conducted office hours. Received positive feedback.

Lecturer (Full-time) Sep. 2013 – May 2015
Islamic Azad University of Arak, Arak, Iran

- Taught courses in Engineering Probability and Statistics, Applied Statistics.
- Created effective materials, received positive student feedback, facilitated engaging lectures and discussions, offered individual/group tutoring, provided constructive feedback, held regular office hours, and received teaching awards in 2013 and 2015.

Visiting Instructor (Full-time) Sep. 2010 – Jun. 2015
Shazand Payam Noor University, Shazand, Iran

- Designed and taught courses: in Biostatistics, Statistics and Probability, Foundations of Probability, Stochastic Process, Time Series, Statistical Quality Control.
- Designed materials and assessments, delivered effective lectures, graded assignments and exams fairly, and provided personalized support during office hours.

Adjunct Professor (Part-time) Sep. 2012 – Jun. 2014
Arak University, Arak, Iran

- Conceived and instructed various courses within the Department of Psychology: (Inferential Statistics, Descriptive Statistics, Statistical Methods with SPSS)
- Developed course materials, delivered engaging lectures, facilitated interactive discussions, assessed assignments and exams, and offered office hours.

WORK EXPERIENCE

Quality Control Analyst (Full-time-Remote) Sep. 2023 - Present

Western Kentucky University, Bowling Green, KY

Support DPCW in developing and assessing prevention initiatives, conducting data analysis, collaborating with offices and providers, researching prevention programs, overseeing data processes, and offering data-driven insights for decision-making.

Trading Data Scientist (Full-time) Jul. 2021 – Aug. 2023

Self-Employed Company, Clarksville, TN

Developed LSTM predictive models for real-time US stock market prices. Designed trading strategies based on statistical analysis and machine learning. Achieved high-performance predictions with a 1.7 RMSE and a 68.7% win rate.

Statistician (Full-time) Jun. 2014 – May 2016

Kavosh-Barayand-Mar Company, Arak, Iran

Led a team in conducting statistical analyses and providing research support. Conducted an employee satisfaction survey for an oil-refinery in 2014 and 2015. Employing statistical models and acting on data insights from 2014, the overall employee satisfaction boosted by 12.35% in the 2015 survey.

Data Scientist (Contract) Jun. 2013 - May 2014

Andisheh-Paydar-Salamat Company, Arak, Iran

Coordinated a data analysis team focused on improving sales strategies. Worked across teams to deliver combined solutions. Monitored developments and sales changes. Enhanced marketing performance (3.3%) in customer acquisition and 2.6% in revenue.

BOOK PUBLICATIONS

- **M. Tabibian**, and S. Samadidana, “*Hands-On Problem-Solving in Python: Mastering the Blind 75 LeetCode Challenges*”, (In Progress) (Expected Release Date: Oct. 2024.) For a preview, visit the online book at: mohsentabibian.github.io/LeetCode-Solutions.
- A. Saeidifar, and **M. Tabibian**, “*Probability and Statistics in Engineering*”, Nevisandeh Publications, Arak, Iran, 2013. (In Persian)

CONFERENCE PUBLICATIONS AND PRESENTATIONS

1. **M. Tabibian**, “*Weighted Neural Networks for Predicting Daily Covid-19 Deaths*”, University of Montana, Missoula, MT, Apr. 2021. (Colloquium).
2. **M. Tabibian**, “*An Overview of Gradient Descent Optimization Algorithms*”, University of Montana, Missoula, MT, Mar. 2020. (Presentation).
3. **M. Tabibian**, “*The Binary Logistic Regression for Missing Appointments*”, University of Montana, Missoula, MT, Dec. 2017. (Presentation).
4. S.M.E. Hosseinasab, and **M. Tabibian**, “*A Review of Considerations of The Bootstrap Method in Regression Problems*”, 11th Iranian Statistical Conference, Iran University of Science and Technology, Tehran, Iran, Aug. 2012, (In Persian).
5. **M. Tabibian**, and S.M.E. Hosseinasab, “*Edgeworth Expansion and Cover Probability of Mean of Regression Distribution*”, 11th Iranian Statistical Conference, Iran University of Science and Technology, Tehran, Iran, Aug. 2012, (In Persian).
6. **M. Tabibian**, and S.M.E. Hosseinasab, “*Investigate of the Cover Prob. of Bootstrap Prediction Interval and its Application in Iranian Housing Price Index*”, 8th Seminar on Prob. and Stochastic Processes, University of Guilan, Iran, Sep. 2011, (In Persian).
7. **M. Tabibian**, and S.M.E. Hosseinasab, “*Improving the Accuracy of Bootstrap Confidence Intervals for Regression Line*”, 10th Iranian Statistical Conference, Tabriz University, Tabriz, Iran, Aug. 2010, (In Persian).

8. **M. Tabibian**, and H. Dibachi, “*Model Selection in Regression Using Bootstrap*”, 5th Statistics Conference, Payam Noor University, Hamadan, Iran, Mar. 2010, (In Persian).

RESEARCH AND PROJECT EXPERIENCE =====

Project: Solved and documented LeetCode coding problems in Python: (In Progress)

- GitHub Repository: <https://github.com/mohsentabibian/LeetCode-Solutions>

Dissertation: Enhanced RNN models for n-day Covid-19 death predictions using GRUs, bootstrap methods, and E-Bagging ensemble technique. Reduced MAE from 5.838 to 2.655 deaths for more accurate predictions. Achieved a 99.1% average coverage probability for prediction intervals, indicating reliability.

PROFESSIONAL DEVELOPMENT =====

- **Conferences Attended**

- National Title IV-E Roundtable Conference, University of Vermont, Burlington, VT, May 21-23, 2024

PROFESSIONAL & ACADEMIC SERVICE =====

- Judge for Student Research Forum, Wilmington College, Wilmington, OH, May 2, 2024. Responsibilities: Evaluated research presentations across various disciplines, provided feedback, and contributed to the selection of "Best in Class" awards.

HONORS AND AWARDS =====

- Graduate Summer Research Award 2019 and 2020
University of Montana | Missoula, MT
Selected to receive funding (\$3,000) for each summer research project. Conducted research under the guidance of a faculty mentor and presented findings at a department seminar.
- Graduate Teaching Assistantship 2016 - 2021
University of Montana | Missoula, MT
Assisted course instructor in delivering lectures, leading discussions, and grading assignments. Conducted office hours and provided individualized support to students. Gained experience in instructional design, classroom management, and student assessment. Received positive feedback from students and instructors on teaching evaluations.
- Distinguished Teaching Awards 2013 and 2015
Islamic Azad University of Arak | Arak, Iran
Recognized for outstanding performance in teaching and contributions to student learning. Selected based on nominations from students and colleagues, as well as a review of teaching evaluations and instructional materials.
- Ranked 32 out of 2500+ participants in 2007
the National Iranian M.Sc. Exam for Mathematical Statistics
Achieved a top rank in a competitive national exam assessing knowledge and skills.

SKILLS =====

Programming and Data Analysis:

- Languages: Python, R (RStudio), SQL, MATLAB.
- Data Tools: Excel, SPSS, Tableau, Power BI
- Workflows: Git, [GitHub](#), Codespaces, Jupyter/Google Colab Notebook.
- Document Prep: Latex, Microsoft Office (Word, PowerPoint).
- Libraries: Pytorch, Keras, TensorFlow, NumPy, Matplotlib, Scikit-Learn, Pandas, Plotly, GGPlot.

Data Science Expertise:

- Statistical Analysis: Hypothesis Testing, Regression Analysis, Time Series Analysis.
- Data Management: Data Collection, Data Cleaning, Data Transformation (ETL),

- Machine Learning: Database Management (SQL). Supervised and Unsupervised Learning, Deep Learning, Reinforcement Learning, Ensemble Techniques.
- Big Data: Handling and analyzing large datasets, familiarity with tools like Hadoop, Spark, and distributed computing.
- A/B Testing: Designing, conducting, and analyzing A/B tests for experimentation.

Non-Technical Skills:

- Project Management: Problem-Solving, Creative Thinking, Research.
- Instruction: Effectively Teach Various Subjects, Curriculum Development, Continuous Learning and Professional Development
- Communication: Effective with Diverse Audiences, Data Storytelling.
- Team Leadership: Team Motivation, Mentorship, Cross-Functional Collaboration.