Yasaman Mohammadpour

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Research Interests

- Data Science & Big Data
- Feature Engineering
- Data Analysis
- Deep Neural Networks
- Cognitive Science & Stress
- Natural Language Processing

Education

Arizona State University — Arizona, USA
M.Sc. in Psychology (Cognitive Science) — *Spring 2024 – Present*

- GPA: 4 out of 4
- Relevant Coursework: Behavioral Data Science, Quantitative Analysis, Professional Issues in Psychology, Cognitive Science, Research Methods

University of Tehran — Tehran, Iran
B.Sc. in Statistics — *2017 – 2022*
GPA (Last 2 Years): 17.57/20 (4 out of 4) - Last 79 Credits

- Faculty Average GPA is 13.22
- Relevant Coursework: Regression, Continuous Multivariate Methods, Computational Statistics, Discrete Multivariate Methods, Time Series, Design of Experiment, Sampling Methods, Probability, Fundamentals of Numerical Analysis, Mathematical Statistics, Strategic Games, Fundamentals of Computer Science and Programming, Advanced Programming, Mathematics Analysis, Differential Equation.

Research Experience

Research Assistant, Arizona State University — Arizona, USA
Advisor: Dr. Nicholas Duran, Co-Advisor: Dr. Nicole Roberts — *Summer 2024 - present*

- **Project:** Enhancing Stress Detection Systems Using Real-World Data and Deep Neural Networks
- Designed and implemented a stress detection system using wearable device data and deep learning, focusing on real-world data preprocessing and data wrangling, interpolation, noise reduction, feature engineering, and robust machine learning models.

Research Assistant, Arizona State University — Arizona, USA
Advisor: Dr. Nicholas Duran — *Spring 2024 - present*

- **Thesis:** Analyzing Linguistic Interactions With Generalizable Techniques—A Python Library (using ALIGN library integrating with LLMs: GPT, RoBERTa, LLaMA).

Research Assistant, Arizona State University — Arizona, USA
Related Behavioral Data Science — *Spring 2024*

- **Thesis:** Speech-based PTSD Prediction
- Utilized NLP preprocessing methods including stopwords, lemmatization, tokenization, and sentiment analysis via transfer learning to process textual data.
- Applied Naive Bayes, Logistic Regression, Random Forest, and Neural Networks to classify discussions on PTSD.

Research Assistant, University of Tehran — Tehran, Iran
Adviseor: Dr. Hedieh Sajedi — *Fall 2021 – Spring 2022*

- **Thesis:** Applications of Artificial Intelligence in Ophthalmology
- Explored the impact of Artificial Intelligence on Medical Education.
- Examined ethical considerations of Artificial Intelligence in Medicine and Ophthalmology.
- Developed AI systems for diagnosing Anterior Segment Diseases.

Academic Teaching Experience

Teaching Assistant, University of Tehran — Tehran, Iran
Mathematical Analysis 1 — *Spring 2021*

Teaching Assistant, University of Tehran — Tehran, Iran
Continuous Multivariate Methods 1 — *Spring 2021*

- Supervised students in project research and development

Teaching Assistant, University of Tehran — Tehran, Iran
Differential Equations — *Spring 2022*

Teaching (over 2 years experience), Pre-University Level — Tehran, Iran
Mathematics and Statistics — *Fall 2017 – Fall 2019*

- Taught over 20 private classes in Mathematics and Statistics.

Skills

- **Programming Languages**: Python (Proficient), R Program (Proficient), MATLAB (Proficient), MINITAB (Proficient), SAS (Statistical Software), STATA.
- **Tools/Packages**: Scikit-Learn, Numpy, Pandas, Matplotlib, PyTorch, TensorFlow, Jupyter Notebooks, Optimization Toolbox (MATLAB), SPSS.
- **Machine Learning & Data Science**: LLMs, PyTorch, TensorFlow, Scikit-learn, Numpy, Pandas, Matplotlib, Jupyter Notebooks
- **Specialized Area**: Data Analysis, Data science, Machine Learning, Data Mining, Deep Learning (including LLMs), Data Processing, Neural Networks, Psychological Assessment, Feature Design and Engineering.
- **Research Skills Concepts**: Data Preprocessing, Data Visualization, Sentiment Analysis, Supervised / Semi-Supervised / Unsupervised Learning, Reinforcement Learning, Dimension Reduction, Large-scale Model Training
- **Typesetting**: LaTeX, TeX, Microsoft Office, Google Docs.
- **Operating Systems**: Windows, Ubuntu.

Selected Course Projects

Predicting Parolee Recidivism — Spring 2024
- Using Logistic Regression, Feature Engineering, Visualization.
- Analysis and interpretation of the dynamics of criminal behavior and rehabilitation.
- Tested on the Georgia Parolee Recidivism Dataset.

Predicting Toxic Comment Classification Analysis — Spring 2024
- Using Logistic Regression, K-Nearest Neighbors, and Naive Bayes.
- Enhanced analysis with cross-validation and tf-idf embeddings.
- Distinguished toxic from healthy comments using the Wikipedia Talk Page Comments Dataset.

Market Segmentation Clustering Analysis — Spring 2024
- via Elbow Method and Silhouette Scores.
- Employed k-means and hierarchical clustering techniques on mall customer data.

The Performance of Knowledge-based Enterprises in Covid-19 Pandemic — Fall 2021
- Analyzed the strategic performance of knowledge-based enterprises during the pandemic.

Randomized Blocks, Latin Squares, and Complete Block Designs — Fall 2021
- Applied experimental design techniques to solve complex design problems.

Application of Neural Networks in Game Theory — Fall 2021
- Developed and analyzed neural network models to optimize game theory strategies.

The Performance of PCA, CNN, LDA, and QDA — Spring 2021
- Evaluated the performance of different machine learning algorithms on the Indian Pines Dataset.

Presentations and Certificates

Brown Bag Colloquium *Fall 2024*, ASU

- Presented an ongoing project on stress detection using Fitbit and textual data.

RCR - Graduate Student Researcher Responsible Conduct of Research *Spring 2024*, ASU

- Responsible Conduct of Research from CITI Program

Conflicts of Interest *Spring 2024*, ASU

- CITI Conflicts of Interest from CITI Program

IRB – Social Behavioral Research (Group 2) *Spring 2024*, ASU

- Human Research from CITI Program

Leadership of the Open-Door Event *Spring 2024*, ASU

- Led the organization and execution of a lie detection event, directing setup and coordination across three lab areas. Managed equipment preparation, ensured operational readiness, and supervised lab members in assisting participants.

Principles of Economics Microeconomics *Spring 2020*, ASU

- Learned about the fundamental principles to make predictions about how individuals behave in certain situations involving economic or financial transactions.

Advanced Python *Fall 2021*, ASU

- Learned about data visualization using matplotlib and Pandas.

Data Manipulation using Pandas *Fall 2021*, ASU

- Learned about data visualization using matplotlib and Pandas.

Python for Economics *Spring 2020*, ASU

- Learned essential packages for economics and data analysis.
- Used Numpy library for numerical computing and data structure.
- Used Matplotlib and Seaborn libraries to visualize data.

Honors and Awards

- Ranked among Top 5% for two consecutive years, Department of Statistics for Graduate Study, *University of Tehran, Iran*, *Spring 2020 - Spring 2022*.
- Recipient of Admission for Bachelor's in Statistics at *University of Tehran*, the Oldest, Largest, and most Prestigious University in Iran, *Spring 2022*.
- Ranked among Top 2% Contestants of the Nationwide University Entrance Qualification Exam (Konkour) among more than 140,000 participants, *Iran*, *Fall 2017*.
- Recipient of Full Bachelor's and Master's Tuition Waiver Fellowship.

References

- **Dr. Nicholas Duran**, School of Social and Behavioral Sciences, Arizona State University
  Email: nduran4@asu.edu
- **Dr. Nicole Roberts**, School of Social and Behavioral Sciences, Arizona State University
  Email: nicole.a.roberts@asu.edu
- **Dr. F. Azizi**, Faculty of Mathematical Sciences Department, University of Tehran
  Email: fa.azizi@alzahra.ac.ir
- **Dr. R. Naderloo**, Faculty of Biology and Biostatistics Department, University of Tehran
  Email: rnaderloo@ut.ac.ir