# Mohammad Reza Chopannavaz

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reza-chopannavaz

## Educational Background

**M.Sc., Computer Engineering, Artificial Intelligence & Robotics** — Tehran, Iran, 2021 - 2025

Faculty of Electrical and Computer Engineering, Tarbiat Modares University.

- **Thesis**: Epileptic Seizure Prediction from Heart Rate Signals using Machine Learning Approach
- **Supervisor**: Dr. Foad Ghaderi
- **Thesis Grade**: Excellent (at 1/2/2025)
- **Total GPA**: 3.65/4.00 (16.39/20 in Iranian Scale)

**B.Sc., Computer Software Engineering Technology** — Tehran, Iran, 2019 - 2021

Department of Computer Engineering, Technical and Vocational University, Shamsipour Technical and Vocational College.

- **Final Project**: Social Media Web-App Similar to Instagram (Snapshots)
- **Total GPA**: 4.00/4.00 (19.42/20 in Iranian Scale), Graduated with **First Rank**

**A.Sc., Computer, Computer Software Engineering Technology** — Tehran, Iran, 2017 - 2019

Institute of Computer Engineering, Technical and Vocational University, Enghelab Eslami Technical College.

## Research Interests

- Machine Learning
- Artificial Neural Networks
- Biological Signal Processing
- Computer Vision
- Explainable AI (XAI)
- Self-Supervised Learning

## Publications in Process

**M. R. Chopannavaz** and F. Ghaderi, "Advances in Machine Learning for Epileptic Seizure Prediction: A Review of Electrocardiogram-Based Approaches", *Engineering Applications of Artificial Intelligence*. (**Under Review**)

**M. R. Chopannavaz** and F. Ghaderi, "An Empirical Investigation of Reconstruction Loss-Based Models for Seizure Prediction from ECG Data". (**Journal Selection**)

## Academic Experiences

**Graduate Teaching Assistant, Digital Signal Processing** — Tehran, Iran, Oct. 2023 – Jan. 2024

Faculty of Electrical & Computer Engineering, Tarbiat Modares University.

- **Supervisor:** Dr. Foad Ghaderi
- **Responsibility:** Assisted with Designing Practice Questions, Providing Guidance and Support, and Grading Assignments.

**Research Assistant, Intelligent Technology Scanning** — Tehran, Iran, Jul. 2023 – Jul. 2024

Information Technology Research Institute, Tarbiat Modares University.

- **Supervisor:** Dr. Foad Ghaderi
- **Responsibility:** Research and evaluation of cutting-edge technology advances to enhance industrial processes.

## Specialized Selected Courses

| Graduate Level | WES Score (out of 4.00) |
|---|---|
| Deep Learning | 4.00 |
| Computer Vision | 4.00 |
| Advanced Data Mining (Big Data Mining & Explainable AI) | 4.00 |
| Advanced Artificial Intelligence (Reinforcement Learning) | 4.00 |
| **Undergraduate Level** | |
| Artificial Intelligence | 4.00 |
| Algorithm Design | 4.00 |
| Engineering Statistics & Probability | 4.00 |

## Programming Skills

| Python Programming | Full-Stack Development | More... |
|---|---|---|
| Pytorch, Tensorflow | Node.js (incl. Express) | Java, C# |
| Numpy, Pandas | React.js & Redux | Object Oriented Programming |
| Matplotlib, etc... | MongoDB | Latex |

## English Proficiency Score

**IELTS (Academic)**

Due to unforeseen circumstances in my home country, the registration for IELTS exam was delayed, creating an unexpected challenge in meeting the admission requirements. Despite this setback, I have proactively continued to enhance my English proficiency through rigorous study. I assure you that I will take the exam promptly and obtain the necessary English proficiency certificate as soon as possible. Please accept my sincere thanks for your understanding and consideration in this situation.

## References


**Dr. Foad Ghaderi (Supervisor)**

- **Title**: Associate Professor at the Faculty of Electrical & Computer Engineering, Tarbiat Modares University
- **Email**: fghaderi@modares.ac.ir

**Dr. Nasrollah Moghadam Charkari**

- **Title**: Associate Professor at the Faculty of Electrical & Computer Engineering, Tarbiat Modares University
- **Email**: moghadam@modares.ac.ir

# Motivation Letter

MOHAMMAD REZA CHOPANNAVAZ

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February 13, 2025

Admissions Team,
School of Biological and Behavioural Sciences,
Queen Mary University of London

Dear Admissions Team,

I am writing to express my keen interest in the PhD position within the VoCS project at Queen Mary University of London. With a strong academic foundation in Deep Learning and Signal Processing, along with hands-on research experience, I am eager to contribute to the development of novel experimental voice synthesis techniques. The opportunity to explore how humans encode, represent, and recall voices aligns seamlessly with my research interests and expertise.

My academic journey began with a bachelor's degree in Computer Software Engineering Technology, where I gained a solid foundation in programming, algorithms, and software development. Graduating with First Rank, I pursued a Master's degree in Computer Engineering with a specialization in Artificial Intelligence and Robotics at Tarbiat Modares University. During my master's studies, I developed a keen interest in applying AI to real-world challenges, particularly in healthcare. Accordingly, I conducted my thesis, "Epileptic Seizure Prediction from ECG Signals using a Machine Learning Approach", where I designed deep learning architectures for physiological signal analysis. My research involved handling time-series data, feature extraction, and building predictive models to forecast epileptic seizures.

A key aspect of my research involved leveraging Deep Learning models such as Autoencoders and Generative Adversarial Networks (GANs) to extract meaningful patterns from physiological signals. This experience also strengthened my hands-on proficiency in Machine Learning frameworks such as PyTorch and TensorFlow, allowing me to design and optimize Deep Learning architectures effectively. The insights gained from my research have led me to prepare a research article detailing the experimental methodology and findings. Additionally, I have conducted a comprehensive review article, consolidating key advancements and challenges in the field to contribute valuable insights to the broader scientific community.

Beyond research, I have been actively engaged in teaching and mentorship. As a teaching assistant for a graduate-level Digital Signal Processing course, I reinforced my understanding of fundamental signal processing concepts while refining my ability to communicate complex ideas effectively. This role strengthened my collaborative and analytical skills, fostering my ability to engage in interdisciplinary discussions.

What excites me most about this PhD opportunity is its interdisciplinary nature, bridging cognitive neuroscience, phonetics, and computational modelling. The project's focus on voice synthesis and participant-led voice selection strongly resonates with my experience in AI-

driven signal processing. I am particularly enthusiastic about developing voice composite methodologies similar to forensic face composites, as this research has both theoretical significance and practical applications in the forensic and commercial domains.

I am eager to contribute to this pioneering initiative by applying my expertise in Deep Learning, Signal Processing, and AI to Voice Communication Sciences. I am confident that my research experience, technical expertise, and analytical mindset make me a strong candidate for this position. I would welcome the opportunity to discuss how my skills align with your group's research objectives. Thank you for your time and consideration. I look forward to your response.

Sincerely yours,
Mohammad Reza Chopannavaz

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**Dr. Foad Ghaderi (Supervisor)**

- **Title**: Associate Professor at the Faculty of Electrical & Computer Engineering, Tarbiat Modares University
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**Dr. Nasrollah Moghadam Charkari**

- **Title**: Associate Professor at the Faculty of Electrical & Computer Engineering, Tarbiat Modares University
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