Erfan Baradarantohidi

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https://erfan7bt.github.io/

EDUCATION

University of Tehran — Sep. 2014 - Sep. 2019
Engineering Science, B.Sc. *with a minor in* **Optimization** — *Tehran, Iran*

Major Courses: *Data Mining, Dynamical Programming, Machine Learning Algorithms, Quantum Algorithms and Computation, Elementary Decision Theory, Optimized Combinotorial Algorithms, Data Structure, Advanced Programming*

Technische Universität Berlin — Oct. 2021 - Expected Sep. 2024
Scientific Computing M.Sc. — *Berlin, Germany*

Major Courses: *Models of Higher Brain Function, Models of Biological Neural Networks, Stochastic Processes In Neuroscience, Machine Intelligence I and II, Control Theory, Numerical Linear Algebra, Scientific Computing*

SKILLS SUMMARY

Programming: C++, Python, JavaScript(React Native), Git, Julia, MATLAB/Simulink, R
Software: Arduino, Code Vision, Atmel Studio , Microsoft Office
Language: Farsi: native, **English**: fluent, **German**: beginner, **Arabic**: beginner
Soft Skills: Leadership, Event Management, Team Management

EXPERIENCES

Max Planck Institute for Human Development — April. 2023 - Present
Student Research Assistant — *Berlin, Germany*

- **Analyzing human physical reasoning and strategy exploration on physical puzzles** Cluster of Excellence, Science of Intelligence -Project 30

Institute of Energy Technology, TU Berlin — Dec. 2017 - Feb. 2018
Intern — *Berlin, Germany*

- **Modeling of the thermal response of temperature sensor,** Clamp on temperature sensor Simulated by OpenModelica; Assisting Research on chipset build-up of non-intrusive Ultrasonic flow meter

Epapa — Oct. 2022 - Present
Co-Founder — *Berlin, Germany*

- **Elearning Platform, Berliner Startup Stipendium Scholorship holder** Mobile developer and Generative AI Consultant

IAESTE — June 2016 - June 2019
Member of committee, Mentor, Exchange Coordinator — *Tehran, Iran*

- The International Association for the Exchange of Students for Technical Experience

College of Engineering, University of Tehran — Sep. 2018 - Sep. 2019
Tutor — *Tehran,Iran*

- **Teacher Assistant and Tutor,** Calculus I, Dynamical Systems

Computational Psychiatry Course — Sep. 2023
Online Course — *Zürich, Switzerland*

- Introduction to psychiatric disorders, Computational modeling and Different types of used models in computational psychiatry and application, and Tutorial sessions

National Brain Mapping Lab — Nov. 2019
Workshop — *Tehran, Iran*

- The theoretical and practical Workshop on "MRI Principles and Its Applications in Functional Neuroimaging"

Projects

NSA (a Novel Heuristic Optimization Algorithm)

- Inspired by dynamics of Non-Linear Spring, a population based heuristic algorithm was suggested
- As a part of bachelor project, Implemented on Matlab and compared with recent heuristic approach on a benchmark of numerical global optimization problems

Models of Higher Brain Function

- Series of assignment in different topics in Reinforcement Learning, Decision making, Perceptual Bi-stability and Visual Attention
- Final Project in Decision Making in Low Rank Recurrent Neural Network
- more details of the covered topics in my GitHub

Solving Bidomain Model using Voroni Finite Volume Method

- Time-dependent model of propagation of electrical potential waves in myocardium

- Alongside existing literature, selection of Model based on a system of Partial Differential Equations
- Model was implemented and numerically solved using Julia programming language
- Comparing results against test data, Documented all the work thoroughly and presented results to get a full mark on corresponding course

Simulating Double Pendulum using Finite Difference Methods and Conjugate Gradient
- As part of the project for the course; Approximate Methods in Engineering, Numerical solution of double pendulum initial value problem were Implemented and visualized in Python

Bifurcation and Regions of Attraction Analysis
- As the project for the course Dynamical Systems for a sets of ODEs the dynamic behavior of system was studied

VOLUNTEER EXPERIENCE

- **2nd Engineering Science Students Conference** — Tehran, Iran
  Executive director and head of electronics jury — *Sep. 2014 - March 2015*

- **First National Spaghetti Structure Competition** — Tehran, Iran
  Member of executive committee — *Nov. 2017*

SCHOLARSHIPS

- **DAAD Scholarship for International Internship** — Berlin, Germany
  Support of my internship at TU Berlin — *Dec. 2017 - Feb. 2018*