Ali Alavi

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Tehran, Tehran Univ. Engineering Faculty
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- **University of Tehran** Iran, Tehran
  M.Sc., Electrical and Electronic Engineering, Communication field and waveSep. 2017 - Sep. 2020
  - Thesis: New method for Monte Carlo simulation of polatization sensetive optical coherence tomography using parallel programming
    - Supervisor: Dr Mahmoud Mohammad-Taheri
    - Advisor: Dr Mahmoud Shahabadi

    Last 2 semesters GPA: 3.57
- **Ferdowsi University of Mashhad** Iran, Mashhad
  B.Sc., Electrical and Electronics Engineering *Sep. 2012 - Mar. 2016*
  - Final Project: LNA compensator with Labview and Xmega microcontrollers
    - Supervisor: Dr Mohammad Taherzadeh
  - Teacher Assistant: Computer programming course
  - Teacher Assistant: Logic circuits course
  - Teacher Assistant: Coordinator for computer architecture lab

  GPA: 3.33
- **Exceprional Talent Organization School** Iran, Mashhad
  High school, Mathematics and physics *2008 - 2012*

Work Experience

- **Ferdowsi University of Mashhad** Iran, Mashhad
  Research Assistant *Jul. 2015- Oct. 2015*
  - Worked as a research assistant on an IC with biomedical application under supervision of Dr Mohammad Taherzadeh
- **Tarashe Sanat-e Pishro** Iran, Mashhad
  High Speed Circuit Designer *July. 2016- Sep. 2016*
  - Designed a FPGA high speed board with DDR3 SDRAM, Ethernet and multiple peripherals
- **Payafanavaran** Iran, Mashhad
  Electrical Engineer *Jan. 2019 - Aug. 2019*
  - Worked on a C# 3D reconstruction project
- **AI-bridge** Hamburg, Germany
  Consultant *Oct. 2019 - Mar. 2020*
  - Implementation and design of state of art deep learning applications with Tensorflow and Pytorch

Extracurricular Activities

- Entrepreneurship Center, *Ferdowsi University of Mashhad 2015-2016.* (**Coordinator and assistant**)
- ICEE Conference, *Ferdowsi University of Mashhad 2015.* (**Student volunteer**)

Awards

Ranked 1600^{th} among about 500000 participitants in national university undergraduate entrance exam
Ranked 154^{th} among about 20000 participitants in electrical engineering national graduate entrance exam

Skills

Programming Languages: C/C++, C#, Python(numpy, panda, scikitlearn, numba, . . .), MATLAB, CUDA, Labview

Digital Systems: VHDL, Verilog, ARM Cortex-M MC

Deep Learning: Tensorflow(v1 v2), Pytorch, Keras

Communication Systems: Hardware defined radio with MATLAB on FPGA

Electromagnetism CST, ADS, Lumerical, COMSOL

Electronics Cadence IC, Virtuoso

Web Development HTML, CSS, PHP, Javascript, React, SQL

Game Developement Unreal Engine 4, Unity

Electrical Content Creation Fusion360, Houdini

Others Linux, LATEX, git

Notable Projects

- Gaussian RBF, deep pose, sentiment analysis with BERT, speech recognition with attention network, medical image segmentation with SegAN. Under supervision of Prof. Reshad Hoseini.
- Image enhancement with Tenet, body part segmentation with PGAN, image colorization with residual encoder, image super resolution with ESRGAN application developement in AI-bridge Company.
- Various paper implementation in the topics of image and text classification and segmentation, body part segmentation, speech recognition, time series prediction, NLP, etc.
- License plate recognition based on novel networks architecture using CNN and LSTM and CTC loss.
- Body transform network based on Nvidia's vid2vid network in pytorch.
- SFM 3D reconstruction in C#.
- Research on deep learning based feature extraction methods for 3D reconstruction applications under supervision on Dr Reza Zoroufi.
- Fourier optics MATLAB simulations under supervision of Prof. Mohammad Neshat.
- Bounded mode plasmon-polariton waveguide, nanowire waveguide, plasmonic waveguide in a thin metal, silicon based hybrid plasmonic waveguide, waveguide-fed optical hybrid nano antenna, leaky wave optical nano antenna, thin film solar cell enhancement with metasurface lens simulations in COMSOL under supervision of Dr. Leila Yousefi.
- Design of LNA balanced amplifier in ADS software at microwave band under supervision of Prof. Shahabadi.

- Design and simulation of magic T in HFSS under supervision of Prof. Mahmoud Kamarei.
- Research review on application of metamaterial for microstrip antenna radiation pattern improvement under supervision of Dr Karim Mohammadpour Aghdam.
- Research on RLC interconnects in VLSI under supervision of Prof. Jalil Agha Rashed Mohassel.
- LNA IC design in cadence IC as a research assistant under supervision of Dr. Mohammad Tehrzadeh.
- Extensive experience in antenna design, metamaterial and metasurface design, Fourier optics.
- Various physics and electromagnetics communication papers implementations.
- RPG game developement with Unreal Engine 4 (including asset creation with Houdini)(personal project).

Notable Graduate Courses

Deep learning and applications

Machine Vision

Metamaterial

Hardware defined radio

Nano photonics

Active microwave circuits

Fourier optics

Electromagnetic compatibility

Languages

Persian , Native Language

English , Full proficiency (TOEFL iBT:101)

Arabic , Basic Proficiency

Paper (UNDER PREPARATION)

Neural network for estimation of optical characteristics of optically active and turbid scattering m
Will be submitted in the next month

Interests

Academic: Machine Learning, Deep learning, Machine vision, NLP, Semantic Segmentation, GAN networks, interdisciplinary applications of deep learning, high performance computing, deep learning and parallel programming solutions for optics, photonics or metamaterial applications, deep learning solutions for end-to-end biomedical and commercial imaging systems

Sports: basketball, football, swimming, gym

Other: ancient world history, archaic languages, video game developement

Primary References

Dr. Mahmoud Shahabadi University of Tehran Professor, shahabad@ut.ac.ir

Dr. Mahmoud Mohammad Taheri University of Tehran Professor,mtaheri@ut.ac.ir

Dr. Mohammad Taherzadeh Sani Ferdowsi University of Mashhad Professor, taherzadeh.m@gmail.com

Dr. Hamid Noori Ferdowsi University of Mashhad Professor, hnoori@um.ac.ir