Saleh Sargolzaei

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Skills

Programming Languages: Python, C++, Matlab, HTML, CSS, Javascript . **Frameworks:** PyTorch, TensorFlow . **Software Libraries:** Scikit-learn, NumPy, Pandas, Matplotlib, Seaborn, SciPy . **Other:** Linear Algebra, Probability Theory, Machine Learning . **Languages:** English (Full Professional Proficiency, TOEFL Score: 106), Persian (Native)

Experience

- **University of Windsor** — Windsor, Ontario, Canada
  Graduate Assistant — *September 2024 - Present*
  - **Graduate Assistant for "Data Structures & Algorithms"**: Supported a course of approximately 300 students by overseeing labs, grading assignments, and providing guidance during labs and office hours.
  - **Course Material Development**: Assisted the instructor in creating and refining course materials to enhance student learning and engagement.
- **DataAnnotation.tech** — Remote
  Remote Software Developer - AI Trainer — *March 2024 - Present*
  - **Code Analysis**: Evaluated code quality produced by AI models in different languages including C++, Python, GO, and HTML for correctness and performance
  - **Idea Generation**: Came up with diverse problems and solutions for a coding chatbot
- **Charles University & University of West Bohemia** — Remote
  Remote Researcher – Applied Machine Learning in Healthcare — *Dec 2022 - Sep 2023*
  - **Data Management**: Collected and curated datasets, including **2,033 bacteria images** and **319 dental radiographs**, for image classification projects.
  - **Automation & Processing**: Automated ROI extraction using template matching and HOG in **Matlab**, significantly reducing manual cropping time.
  - **Model Development**: Developed and trained CNNs (**MobileNet-v2, EfficientNetV2-S, ResNet-50**) using **PyTorch** and **TensorFlow** for medical image classification. Implemented ML algorithms like logistic regression and random forest for cancer classification.
  - **Performance Optimization**: Achieved **99.33%** accuracy in bacteria classification and a mean **AUC of 0.87** in dental condition classification through rigorous validation techniques.
  - **Visualization & Deployment**: Created visualizations with **Seaborn** and **Matplotlib**, and deployed cloud environments on **Codeocean** to share code and data.
  - **Publications**: Co-authored three Q1/Q2 journal papers, accumulating **over 100 citations** within a year.
- **Azad University of Mashhad** — Mashhad, Khorasan Razavi, Iran
  Teaching Assistant — *September 2022 - December 2022*
  - **Teaching Assistant - Fundamentals of Deep Learning**: Became the first undergraduate student to teach sessions on implementing algorithms using PyTorch to Master's students. Imparted fundamental concepts such as loss functions, gradient descent, backpropagation, etc., to help students gain a better understanding of the subject matter. Managed a class of over 30 graduate students.

Publications

- **Sargolzaei, S.**; Rueda, L. (2025). Improving Out-of-Distribution Data Handling and Corruption Resistance via Modern Hopfield Networks. Pattern Recognition. ICPR 2024, vol 15326. Springer, Cham. doi.org/10.1007/978-3-031-78395-1_6
- Jamshidi, M.B.; **Sargolzaei, S.**; Foorginezhad, S.; Moztarzadeh, O. Metaverse and Microorganism Digital Twins: A Deep Transfer Learning Approach. Applied Soft Computing, 2023, https://doi.org/10.1016/j.asoc.2023.110798
- Moztarzadeh, O.; Jamshidi, M.B.; **Sargolzaei, S.**; Keikhaee, F.; Jamshidi, A.; Shadroo, S.; Hauer, L. Metaverse and Medical Diagnosis: A Blockchain-Based Digital Twinning Approach Based on MobileNetV2 Algorithm for Cervical Vertebral Maturation. Diagnostics 2023, https://doi.org/10.3390/diagnostics13081485
- Moztarzadeh, O.; Jamshidi, M.; **Sargolzaei, S.**; Jamshidi, A.; Baghalipour, N.; Malekzadeh Moghani, M.; Hauer, L. Metaverse and Healthcare: Machine Learning-Enabled Digital Twins of Cancer. Bioengineering 2023, https://doi.org/10.3390/bioengineering10040455

Education

- **University of Windsor** — Windsor, Ontario, Canada
  Master of Science in Computer Science (Artificial Intelligence Stream) — *May 2024 – April 2026*
  - **Scholarships**: Awarded 17,500 CAD by Vector Institute to pursue an MSc in Artificial Intelligence in Ontario; Awarded 7,500 CAD by University of Windsor Master's International Entrance Scholarship (thesis/major paper stream).
- **Azad University of Mashhad** — Mashhad, Khorasan Razavi, Iran
  Bachelor of Engineering in Computer Engineering; Cumulative GPA: 18.72/20 (3.76/4) — *September 2018 – February 2023*
  - **First Rank**: Achieved the first rank among 137 computer engineering students admitted in September 2018

Selected Projects

- **Generate Faces Using DCGAN (Link)**: Developed and trained a DCGAN using PyTorch to generate realistic images of faces, following the architecture described in the original DCGAN paper.
- **Sentiment Analysis with LSTM (Link)**: Implemented a recurrent neural network (Long short-term memory) using PyTorch that performed sentiment analysis.
- **Bike Sharing Prediction (Link)**: Built a neural network **from scratch** using **Numpy** to carry out a prediction problem on a real dataset that comes from the UCI Machine Learning Database.
- **Teaching Linear Algebra (Link)**: Created a Persian language tutorial on Linear Algebra for machine learning on LinkedIn, which received **more than 160,000** impressions.