SHADAN GOLESTAN - CURRICULUM VITAE

Edmonton, Alberta

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HIGHLIGHTS OF SKILLS

- 6+ years of research experience in artificial intelligence, Bayesian optimization, and Reinforcement Learning
- Excellent problem-solving skills, organization and presentation skills demonstrated by authoring 12 publications
- Excellent collaboration skills demonstrated by working in the industry as a Data and ML Scientist

EDUCATION

Doctor of Philosophy, Computer Science
University of Alberta

Sep 2017 – May 2022
Edmonton, Canada

Research Areas: Bayesian Optimization, Reinforcement Learning, Sequential Decision-Making Under Uncertainty

Master of Science, Artificial Intelligence and Robotics
University of Tehran

Sep 2014 – Sep 2017
Tehran, Iran

Research Areas: Human-Centered AI, Human-Computer Interaction, Human-Robot Interaction

Bachelor of Science, Computer Software Engineering
Arak University

Sep 2008 – Nov 2013
Arak, Iran

Final Project: Sign-language Detection with Microsoft Kinect and Dynamic Time Warping

PUBLICATIONS

Golestan, Shadan, Omid Ardakanian, and Pierre Boulanger. "Grey-box Bayesian Optimization for Sensor Placement in Assisted Living Environments", submitted to AAAI-2024.

Golestan, Shadan, Eleni Stroulia, and Ioanis Nikolaidis. "Smart Indoor Space Simulation Methodologies: A Review." IEEE Sensors Journal (2022).

Golestan, Shadan, Ioanis Nikolaidis, and Eleni Stroulia. "Towards a Simulation Framework for Smart Indoor Spaces." Sensors 20.24 (2020): 7137.

Golestan, Shadan, Petcovici, Alexander, Nikolaidis, Ioanis, and Stroulia, Eleni, "Simulation-Based deployment configuration of smart indoor spaces," IEEE 5th World Forum on Internet of Things (WF-IoT) (WF-IoT 2019), Limerick, Ireland, Apr. 2019.

Golestan, Shadan, Diaz Romero, Dillam, Stroulia, Eleni, Miguel-Cruz, Antonio, and Liu, Liu, "Sensor-enabled Functional-Mobility assessment: An exploratory investigation," IEEE 5th World Forum on Internet of Things (WF-IoT)(WF-IoT 2019), Limerick, Ireland, Apr. 2019.

Golestan, Shadan, Kazemian, Sepehr, and Ardakanian, Omid. "Data-Driven Models for Building Occupancy Estimation." Proceedings of the Ninth International Conference on Future Energy Systems. ACM, 2018.

Golestan, Shadan, Mahmoudi-Nejad, Athar, and Moradi, Hadi, "A Framework for Easier Designs: Augmented Intelligence in Serious Games for Cognitive Development," IEEE Consumer Electronics Magazine 8.1 (2019): 19-24.

Golestan, Shadan, Soleiman, Pegah, and Moradi, Hadi. "A Comprehensive Review of Technologies Used for Screening, Assessment, and Rehabilitation of Autism Spectrum Disorder." arXiv preprint arXiv:1807.10986 (2018).

Golestan, Shadan, Soleiman, Pegah, and Moradi, Hadi. "Feasibility of using Sphero in rehabilitation of children with autism in social and communication skills." 2017 International Conference on Rehabilitation Robotics (ICORR). IEEE, 2017.

Golestan, Shadan, et al. "Introducing i-puck: An educational mobile robot." 2016 4th International Conference on Robotics and Mechatronics (ICROM). IEEE, 2016.

Soltani, Fakhteh, Eskandari, Fatemeh, and **Golestan, Shadan**. "Developing a gesture-based game for deaf/mute people using microsoft kinect." 2012 Sixth International Conference on Complex, Intelligent, and Software Intensive Systems. IEEE, 2012.

TECHNICAL SKILLS

Programming Languages: Python, R, MATLAB, C++, C#, Java, SQL
Professional Tools: Gym, BoTorch, PyTorch, TensorFlow,
Development Tools: VS Code, Jupyter Notebook, Git, AWS Sagemaker

RELATED EXPERIENCE

Ph.D. Research **Sep 2017 – May 2023**
Sequential Decision-Making Under Uncertainty

- ⬀ **Sensor Configuration Optimization:** Proposed a novel black-box optimization framework using Bayesian Optimization. Our framework produces sensor configurations that can detect indoor activities significantly more accurate than state-of-the-art methods.
    * **Tools:** Python, OpenBox, scikit-learn
- ⬀ **Grey-box Bayesian Optimization:** Proposed a novel grey-box Bayesian optimization to learn the spatial distribution of inherent knowledge in the objective function. Our algorithm finds optimal solutions with significantly less number of expensive function queries.
    * **Tools:** Python, OpenBox, scikit-learn
- ⬀ **RL-driven Bayesian Optimization:** Proposed a reinforcement learning framework to learn a policy for constructing a suitable acquisition function for Bayesian optimization based on the current optimization state, resulting in finding solutions significantly better than vanilla BO.
    * **Tools:** Python, Gym, OpenBox, scikit-learn
- ⬀ **Indoor Activity Recognition:** Used Probabilistic Random Forest (PRF) for predicting occupants activities using motion sensors. We found that occupants leave distinct enough trace in sensor readings space so that a PRF can recognize the activities.
    * **Tools:** Python, scikit-learn
- ⬀ **Data-Driven Models for Occupancy Estimation:** Two data-driven techniques, i.e. Particle Filter and Time Series Neural Networks, were used to accomplish the task for two data sets. We found that data-driven models accurately predict the number of occupants in each room.
    * **Tools:** MATLAB, Neural Network Time Series Toolbox

Machine Learning Intern, ShopHopper **May 2022 – Aug 2022**
Deep Learning

- Designed a model based on **CNN**, and deployed **transfer learning** detect various types, styles, and patterns of fashion products. Significant performance improvement was observed by combining these predictions with those generated by **NLP** techniques.
    * **Tools** Python, TensorFlow, scikit-learn, SpaCy
- **Supervised** a group of five computer science interns to reach milestones.

Data Scientist Intern, Visier INC. **Sep 2020 – Apr 2021**
Data Science

- Studied **causality and correlation** of features with the performance of prediction models. We found that important features for different groups of customers.
    * **Tools** Python, AWS Sagemaker

M.Sc. Research **Sep 2014 – Sep 2017**
Human Subject Study and Robotics

- Proposed a **human-in-the-loop** framework for **augmented intelligence** for human-computer/robot interactions designed for autistic children. We found that the framework significantly improves communication skills in the children.
    * **Tools** Unity3D, C#, Sphero Robot
- ⬀ Designed a Bayesian approach based on **Particle Filtering** for **localization** of a mobile robot in a maze
    * **Tools** C++, e-puck Robot

Software Engineer, Jaboun Co. ⬀ **May 2014 – Sep 2014**
Software Development

- Developed a front-end **communication application** for employees
    * **Tools** C#