Nima (Ross) Sarajpoor

Alberta, Canada

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Weblog: https://nimasarajpoor.github.io/blog/

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Selected Projects (with hyperlinks)

- **Developed *shape-aware time aggregation***: Developed a model to capture shape of **time series** as well as the co-movement of patterns in multi-dimensional data (click here).
- **Developed *hybridized-centroid for spatio-temporal clustering***: Developed an unsupervised model using a novel hybridized distance to discover typical patterns in **spatio-temporal time series data** (click here) [under second round of review]
- **Developed *Group-Feature***: Developed a new feature in the machine learning library MLXTEND that allows users to define group of features as one single group throughout feature selection process. The feature is added to both exhaustive and sequential feature selection. This can **speed up the process** when data contains many categorical attributes (click here and here).
- **Developed and Improved *anomaly detection MERLIN***: Implemented **anomaly detection** algorithm to **detect discords in time series**. Added warm start to speed up computation (click here).
- **Developed *K-NearestNeighbor feature in Matrix Profile***: Added feature KNN feature to library STUMPY for obtaining **top-k patterns in sequential data such as time series** to detect regions with similar behaviors. Used CUDA to take advantage of GPU to tackle the added overhead (click here).
- **Created *open source package for explaining Random Forest***: Created an open-source tool to increase transparency of random forest classifier with the help of association rule (click here).

Education

- **University of Calgary** — Alberta, Canada
  PhD, Dept. of Electrical and Software Engineering — *Dec 2022*
- **Sharif University of Technology** — Tehran, Iran
  SUT is ranked 1st among Iranian Universities in Science and Engineering — *2013 - 2015*
- **University of Tehran** — Tehran, Iran
  Electrical Engineering — *2009 - 2013*

Selected Achievements

- **Github Contributions** — Canada
  Top contributor in two open-source libraries STUMPY and MLXTEND — *2022*
- **Programming Contest (CCPC)** — Alberta, Canada
  Ranked 5th in Calgary Collegiate Programming Contest — *2022*

- **Gordon Lewis Hedberg Doctoral Scholarship** — Alberta, Canada
  Student with Excellent Grades — *2021*
- **Deep Learning Certificates** — Deeplearning.ai
  Cetificates: DL basics, hyperparameter tuning, CNN, ML project structure in DL — *2021*
- **M.Sc. National Competition Award** — Tehran, Iran
  Ranked 6^{th} among more than 5000 participants of M.Sc. National Exam — *2013*

Skills

- **Programming:** Python (Numpy, Numba, Pandas, Matplotlib), OOP, Unit testing, Refactoring, Data structure and algorithms, Git version control, and familiar with SQL, R, and MATLAB.
- **Machine Learning:** Data preprocessing, Scikit-learn, TensorFlow, Automated ML with pipelines, experienced with unsupervised and supervised learning models.
- **Math and Stats:** Solid background in math and algebra, took advance courses "probability and stochastic process", "computational statistics", "data mining", "applied data science", "deep learning"

Employment

- **Research Assistant and Teaching Assistant** — Albert, Canada
  Faculy of Grad Studies (University of Calgary) — *Current*
- **Electrical Engineer** — Tehran, Iran
  MECO (MAPNA Group) — *2016-2017*

Voluntary Positions

- **Lecture Lead and Mentor in Python programming** — Alberta, Canada
  Schulich Ignite, University of Calgary — *Winter 2022- Summer 2022*
- **Vice President of Grad Students** — Alberta, Canada
  Department of Electrical and Software Engineering — *2017-2019*
- **Evaluator** — Alberta, Canada
  IEEE award committee, Graduate Student Association — *2017-2018*

Extra-curricular Activities

- Preparing a tutorial on data structure and algorithms (click here).
- Writing about Machine Learning in my blog (click here) and medium (click here).
- Playing chess
- Listening to piano music
- reading philosophical books