Shervin Khazaeli

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Summary

Senior Data Scientist with extensive expertise in designing and implementing advanced machine learning solutions, driving over $60M in cost savings. Proven leader of multifunctional teams, fostering innovation and mentoring emerging data scientists. Skilled at collaborating closely with stakeholders to ensure high-quality project delivery and achieving strategic objectives.

Experience

- **Trinnex (CDM Smith)** Canada/USA
  Senior Data Scientist (Full-time) *2022 - Present*
  - **Analytics development**: Designs and implements advanced Machine Learning (ML)-based solutions, focusing on predicting material compositions of water service lines, identifying anomalies, and forecasting break occurrences. Deploys and monitors end-to-end ML pipelines ensuring seamless integration and optimal performance in real-world applications. The predictive models and optimized inspections help clients manage their LCRR/LCRI programs and comply with LCRR/LCRI Regulations.
  - **Leadership**: Leads a multifunctional team of developers in the creation of innovative web-based applications aimed at predicting water main breaks. Collaborates with cross-functional teams to address deployment related challenges and enhance the operational efficiency of ML solutions. Mentors data scientist for personal and career development.
  - **Strategic innovation**: Fosters a collaborative environment with stakeholders to identify opportunities for the implementation of ML-driven solutions, contributing to the development of cutting-edge projects and ensures the delivery of high-quality products.
- **Polytechnique Montréal** Canada
  Research Assistant (Full-time) *2018 - 2022*
  - **Framework development**: Designed & implemented an autonomous anomaly detection framework for civil infrastructures.
  - **Algorithm/Software development**: Improved and developed Bayesian dynamic linear models and coupled them with reinforcement learning for anomaly detection
  - **Communication**: Periodic meetings and preparation of the reports for Ponts Jacques Cartier et Champlain incorporée
- **Smart City X** Canada
  President & Co-founder *2017 - 2018*
  - **Smart Systems**: Designed and led events enhancing the application of the smart systems and sensors for monitoring of infrastructures, water resources, and public health.
- **Sensequake Inc.** Canada
  Consultant (Part-time, Contractual) *2016 - 2017*
  - **Data acquisition & analysis, and report preparation**: Planned & installed sensors, and acquired high quality sensory data for data analysis; Built data-driven models from sensory data for seismic assessment of civil structures; preparing comprehensive assessment reports for the clients.
  - **Process automation**: Automated various data acquisition and analysis procedures.
- **Concordia University** Canada
  Research Assistant (Full-time) *2014 - 2017*
  - **Cloud Architecture development**: Designed & implemented cloud-based solution for structural health monitoring using AWS.
  - **Framework development**: Developed framework for damage detection and identification using data-driven models.
  - **Instructor**: Designed & offered the course "Probabilistic Graphical Modeling" to build causality models in various disciplines.
- **Udemy Inc.**
  Instructor *Remote*
  - **Presentation Design MasterClass** | **LaTeX**: Designed & offered the course to mastery the art of the presentation using LaTeX.

Education

- **Polytechnique Montréal** Canada
  PhD- Civil Engineering (Artificial Intelligence)
  Keyword: *Reinforcement Learning, Imitation learning, Decision Making, Probability, Bayesian Model*

Publications

- **Damage detection for structural health monitoring using reinforcement and imitation learning**: Structure and Infrastructure Engineering, Taylor & Francis, 2024
- **Anomaly detection using state-space models and reinforcement learning**: Structural Control & Health Monitoring, Wiley & Sons, 2021
- **OpenBDLM: an open-source software for structural health monitoring using Bayesian dynamic linear models**: ICASPCE, South Korea, 2019
- **The application of data mining and cloud computing techniques in data-driven models for structural health monitoring**: SPIE, USA, 2016