Akshay Kale

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EDUCATION

- **Ph.D. Computer Science** – *University of Nebraska at Omaha*   **Aug 2019 - Present**
- **M.S. Computer Science** – *University of Nebraska at Omaha*   **Aug 2016 - May 2019**

TECHNICAL SKILLS

- Python, R, Javascript, SQL, NumPy, pandas, scikit-learn, TensorFlow, PyTorch, Jupyter, Matplotlib, Plotly, seaborn
- Machine Learning, Explainable AI, Natural Language Processing, Statistics, Data Visualization

WORK EXPERIENCE

Graduate Assistant – Developing Explainable ML Tools for Bridge Management

Bridge Lab | University of Nebraska at Omaha   **Aug 2017 — Present**

- Collaborated with civil engineers, bridge managers, and researchers to develop and implement machine learning and deep learning models for prediction of bridge maintenance, resulting in 3 research publications and other ongoing work
- Created web crawlers for scraping precipitation, snowfall, freeze-thaw, and bridge inspection-related records resulting in a collection of over 21 million records
- Trained bridge maintenance machine learning models, with 98% accuracy, an improvement by 10% in comparison to state-of-the-art
- Communicated results analysis through interactive visualizations, written reports, publications, and presentations

PROJECTS

FrameForecast – *An LSTM Autoencoder to predict sequence data*   **Summer 2021**

Python | TensorFlow | Deep Learning – Link

- Trained a Deep Learning AutoEncoder to predict the future sequence of frames in a public moving MNIST dataset of over 1,000 images with 95% accuracy

CoRA –*Commingled Remains Analytics*

Javascript | D3.js | Data Visualization   **Spring 2022**

- Developed a Forced Directed Network Graph visualization to identify fallen World War II soldiers from their remains

SELECTED PUBLICATIONS

- Kale A, Kassa Y, Ricks B, Gandhi R. *A Comparative Assessment of Bridge Deck Wearing Surfaces: Performance, Deterioration, and Maintenance*. Applied Sciences. 2023; 13(19):10883.
- Kale A, Ricks B, and Gandhi R. *New measure to understand and compare bridge conditions based on inspections time-series data.* Journal of Infrastructure Systems 27.4 (2021): 04021037.
- Ramsey A, Kale A, Kassa Y, Ricks B, Gandhi R. *Toward Interactive Visualizations for Explaining Machine Learning Models.* Proceedings of the Information Systems for Crisis Response and Management Conference, Omaha, NE, USA. 2023.