

+ WORK EXPERIENCE

Ekohealth

Oakland, CA / Remote

Data Scientist Intern

09/2020 – 12/2020

- Helped build the product Eko-core, an FDA-cleared digital stethoscope attachment device, saving cost by half for patients with fistula (AVF)
- Spearheaded a project building the prototype of an audio-based dialysis fistula assessment algorithm to detect stenosis
- Prepared regulatory submissions for FDA; helped secure \$295,881 in SBIR funding from the National Institutes of Health (NIH)
- Productionalized customer-facing python-based analysis pipeline using AWS cloud services
- Constructed machine learning models (acc: 73.68%, AUC: 0.85) detecting stenosis caused by AV fistula

The Johns Hopkins Data Science Lab

Baltimore, MD

Research Assistant

08/2019 – 05/2020

- Headed a project focusing on association analysis between lifestyle patterns, physical activity, and body mass index (BMI)
 - Imported SAS data into R and performed EDA using dplyr and tidyverse
 - Trained convolutional neural networks (CNN) using Keras for BMI prediction with 25.45 mean squared error (MSE)
 - Decreased the data dimensionality using principal component analysis (PCA) and improved prediction by 23% training a generalized linear model (GLM)
 - Hosted R Shiny website comparing machine learning algorithms (PCA, k-means, UMAP, and t-SNE) & visualized clustering results using ggplot2 and plotly
- Demo: https://github.com/LuchaoQi/Shiny_clustering

+ PROJECTS

Reinforcement Learning: OpenAI Gym

02/2020 – 05/2020

AI that Learns to Play Super Mario Bros Using Deep Q-Network (DQN)

Demo: https://github.com/LuchaoQi/Reinforcement_Learning

- Developed a convolutional neural network (CNN) model as an agent using TensorFlow
- Accelerated model training by 20% adjusting optimizer and learning rate
- Achieved 2X faster than average of human players with the trained agent completing tasks successfully

Natural Language Processing: Amazon Reviews

09/2019 – 12/2019

Use of Machine Learning to Detect Fake Amazon Fine Food Reviews

Demo: <https://www.kaggle.com/luchaoqi/amazon-review-rating-prediction>

- Processed Amazon Food Review data using Pandas, NumPy, and dfply in Python
- Tokenized unstructured text of user reviews using NLTK; converted text to vector using bag-of-words models with scikit-learn
- Predicted customer ratings using logistic regression with 0.94 AUC
- Improved negative reviews detection by 3% using random forest

+ SKILLS

Programming Languages

Python, R (R Shiny), SQL, Shell scripting

Data Visualization

Tableau, Matplotlib, Seaborn, ggplot2, plotly

Packages

Pandas, NumPy, SciPy, NLTK, scikit-learn, dplyr, tidyverse

Frameworks & Platforms

PyTorch, TensorFlow, Keras, Hadoop, AWS

Machine Learning & Deep Learning

GLM, Random Forest, SVM, PCA, CNN, LSTM

+ EDUCATION

Johns Hopkins University

Baltimore, MD 05/2020

Master of Science in Engineering

Biomedical Data Science

GPA: 3.6/4.0

Northeastern University

Liaoning, CN 05/2018

Bachelor of Science

Biomedical Engineering

GPA: 3.8/4.0