LUCHAO QI

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+ 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
- Secured $295,881 in SBIR funding for clinical data collection 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