LUCHAO QI

Baltimore, MD

+1 (443) 839-9129 | luchaoqi.email@gmail.com
https://www.linkedin.com/in/luchaoqi/
https://luchaoqi.com/

PROFESSIONAL EXPERIENCE

Ekohealth Oakland, CA
Data Scientist Intern 09/2020 – 01/2021
Responsible for building the prototype of an audio-based dialysis fistula assessment algorithm for an FDA-cleared digital stethoscope, from ideation to launch, saving ~$900 monthly cost for hemodialysis patients. Worked closely with the clinical team to extract insights from data and provided AI-powered analysis to boost clinical workflow.

- Oversaw clinical data collections for the product EKO-CORE to ensure data quality.
- Coordinated cross-function teams of 5 engineers and 3 doctors to design machine learning algorithms detecting vascular stenosis in fistula with 73.68% accuracy.
- Productionalized customer-facing analysis pipeline in Python using AWS (S3, EC2, SageMaker); optimized SQL server performance by 13% to query clinical data.
- Delivered regulatory submissions for FDA approval product and successfully secured $295,881 in SBIR funding from the National Institutes of Health.

The Johns Hopkins Data Science Lab Baltimore, MD
Research Assistant 08/2019 – 05/2020
Headed time-series analysis for wearable activity data (NHANES). Investigated associations between body mass index (BMI), mortality, and physical activity using statistical methods including ANOVA, dimension reduction, and hypothesis testing. Discovered statistically significant predictors improving health-related physical fitness.

- Extracted 100K+ time-series SAS data from CDC in R and manipulated data using dplyr and tidyverse.
- Designed CNN-based neural network using Keras for BMI regression with 25.45 mean squared error (MSE).
- Reduced data dimensionality using principal component analysis (PCA); improved prediction by 23% training a generalized linear model (GLM).
- Hosted R Shiny website performing cluster analysis; visualized clustering results using ggplot2 and plotly.

EDUCATION

Johns Hopkins University 05/2020
Biomedical Engineering - Data Science, M.S.E., GPA: 3.6. Baltimore, MD

- JHU Fellowships (Tuition Scholarship with 12% acceptance rate)

Northeastern University 05/2018
Biomedical Engineering, B.S., GPA: 3.8. Liaoning, CN

- Dean's List (2014 – 2018)

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 DQN-based convolutional neural network (CNN) model as an AI agent using TensorFlow and accelerated neural network training parallelly by 30% using JAX. 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 or Abusive Amazon Fine Food Reviews.
Demo: https://www.kaggle.com/luchaoqi/amazon-review-rating-prediction
Performed data wrangling on Amazon Fine Food Reviews using Pandas, NumPy, and dfply. Tokenized textual data using NLTK and vectorized text using bag-of-words models with scikit-learn. Achieved 94% accuracy detecting fake ratings using logistic regression; improved algorithm performance by 3% using random forest.

SKILLS

Programming Languages
Python, R (R Shiny), SQL / MySQL, Shell scripting.

Data Visualization
Tableau, Matplotlib, Seaborn, ggplot2, plotly.

Packages
Pandas, NumPy, SciPy, NLTK, scikit-learn, dplyr, tidyverse, Selenium, beautifulsoup4.

Machine Learning & Deep Learning
GLM, Bayesian Methods, Random Forest, SVM, PCA, Ensemble Methods, CNN, LSTM.

Frameworks & Platforms
PyTorch, TensorFlow, Keras, Hadoop, Flask, AWS, GCP, Google Analytics, Kubernetes.

ADDITIONAL INFORMATION

Interests: Western Art (fan of Vincent van Gogh); Data Structure (LeetCode contest global ranking ~2000, Google Code Jam 2020).
Other Activities: JHU Club Soccer Team; IEEE Membership 2018-2020.