

# LUCHAO QI

Data Scientist  
Baltimore, MD

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## PROFESSIONAL SUMMARY

Data Scientist familiar with gathering, cleaning and organizing data for use by technical and non-technical personnel. Advanced understanding of statistical, algebraic and other analytical techniques. Highly organized, motivated and diligent with significant background in predictive analytics.

## PROFESSIONAL EXPERIENCE

**Data Scientist Intern** 09/2020 – 12/2020

*Ekohealth, Oakland, CA*

- Helped build the product Eko-core, an FDA-cleared digital stethoscope attachment device, saving monthly cost for patients with arteriovenous fistula (AVF)
- Spearheaded a project to build the prototype of an audio-based dialysis fistula assessment algorithm detecting stenosis, which helps secure \$295,881 in SBIR funding from the National Institutes of Health (NIH)
- Productionalized customer-facing python-based analysis pipeline using AWS cloud services
- Implemented Fast Fourier transform (FFT) algorithm on audio signals for feature engineering based on frequency domain
- Constructed machine learning models (acc: 73.68%, AUC: 0.85) detecting stenosis caused by AV fistula

**Research Data Scientist** 08/2019 - 05/2020

*The Johns Hopkins Data Science Lab, Baltimore, MD*

- Spearheaded the project focusing on association analysis between lifestyle patterns, physical activity, and body mass index (BMI)
- Migrated data in SAS transport file format from external databases using R and processed data using dplyr and tidyverse
- Decreased the data dimensionality using principal component analysis (PCA) and predicted user BMI with 46.07 mean squared error by training a generalized linear model (GLM)
- Achieved a 13% error reduction rate utilizing random forest and nested ANOVA (F-test) on principal component groupings

**Data Analyst Intern** 04/2019 - 07/2019

*Johns Hopkins University, Baltimore, MD*

- Executed and managed research project on survival analysis of accelerometer time-series data
- Created a convolutional neural network (CNN) using Keras to predict the 5-year mortality with 71% accuracy
- Improved the accuracy to 86.45% by implementing a regularized logistic regression model using principal component scores
- Hosted R Shiny application comparing machine learning algorithms (PCA, k-means, UMAP, and t-SNE) & visualized clustering results using ggplot2 and plotly

## SKILLS

### Programming Languages

Python, R (RShiny), SQL, Shell scripting

### Visualization

Tableau, Matplotlib, Seaborn, ggplot2, plotly

### Packages

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