# + WORK EXPERIENCE

#### **Ekohealth**

Data Scientist Intern

Oakland, CA / Remote 09/2020 – 12/2020

- Assisted in developing the product Eko-CORE, an FDA-cleared digital stethoscope device, saving cost by half for patients with fistula (AVF)
- Headed a project building the prototype of an audio-based dialysis fistula assessment algorithm to detect stenosis caused by AV fistula
- Productionalized customer-facing python-based analysis pipeline using AWS cloud services (S3, EC2, SageMaker)
- Designed machine learning models (acc: 73.68%, AUC: 0.85) detecting stenosis
- Prepared regulatory submissions for FDA; helped secure \$295,881 in SBIR funding from the National Institutes of Health (NIH)

### The Johns Hopkins Data Science Lab

Baltimore, MD 08/2019 – 05/2020

Research Assistant

- 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
- Developed convolutional neural networks (CNN) using Keras for BMI prediction 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

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% optimizing learning rate and optimizer
- 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
- 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