

# ZIKE QIN

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## EDUCATION

### Duke University (GPA: 3.8)

Aug. 2017 - May 2019

M.S. Electrical and Computer Engineering

Key Courses: Machine Learning, Pattern Recognition, Deep Learning, Advanced Seminar in Computational Photography

### Nanjing University (GPA: 4.24/5)

Sep. 2013 - Jun. 2017

B.Eng Biomedical Engineering

## EMPLOYMENT

### Duke Institute of Health Innovation, *Data Science Intern*, Durham, NC

May 2018 - Present

#### ICU Patients Bounce Back Prediction (ongoing)

- Designing classification models to predict ICU patients bounce back (unexpected readmission to ICU).
- Reading papers about previous study in ICU data analytics and mortality modeling.

#### Lab Analyte Order Analysis

- Performed anomaly detection and trend analysis on analyte orders with 40 million records using fast Fourier transform and rolling bands.
- Identified analytes with abnormal number of orders, allowing hospitals to examine name trends and potentially reduce redundant tests.
- Implemented Bhattacharyya distance algorithm on value distribution to search for duplicate analyte with different names in Python.
- Generated interactive visualization for analyte ordering in analyte name groups with matplotlib, Dash, and Plot.ly visualization tools.

#### Lab Analyte Grouping Web Application

- Designed a single page web application to normalize analyte names semi-automatically for Duke University Hospital using React.js, MobX, and Bootstrap.
  - Communicated product design and project progress biweekly with stakeholders in person, incorporating feedback in an agile manner.
  - Reduced 40% data preparation time for future data science projects at Duke Health by generating 100% accurate analyte groupings.
- Data Handling:
- Built a relational database in MySQL and handled queries through Object Relational Models with Python and SQLAlchemy.
  - Created REST APIs to handle database requests and conducted unit test with Python Unittest framework.

### Duke University, *Teaching Assistant*

Aug. 2018 - Present

- Coaching students in ECE551 - Programming, Data Structures, and Algorithms in C++ for 2019 fall semester.
- Conducting recitation sessions weekly to help students review and practice topics covered in the course.
- Grading evaluative coding assignments, mini-projects, and exams.

## PROJECTS

### TalkingData AdTracking Fraud Detection Kaggle Challenge ([link](#))

Apr. 2018

- Participated as a team of 3, ranked at top 16.6% on private leaderboard.
- Performed exploratory data analysis and feature engineering on the highly imbalanced dataset.
- Evaluated and optimized the model by ROC/AUC scores with 3-fold stratified cross-validation.
- Designed and compared performance of logistic regression, decision tree, gradient boosting tree, and stacking ensemble models, then wrote a 22-page report.

### Tyrata Data Simulator in Java

Jan. 2018 - Mar. 2018

- Developed a Data Simulator Application with Bluetooth data transmission for startup company Tyrata Inc.
- Led a team of 5 in the 3-sprint agile development project, and ran scrum meetings, used tools including Gitlab, Trello, and Slack.

### Numerical Methods Implementation in C++

Oct. 2017 - Dec. 2017

- Ranked top 5% (top 10/180) in class with a full code quality score.
- Implemented a scientific calculator that allowed user to define and evaluate multivariate functions.
- Designed data structure and algorithms to support numerical integration, Monte Carlo integration, and gradient descent.

### Spatial Pattern Analysis on EEG Signals ([link](#))

Dec. 2016 - Mar. 2017

- Performed spatio-temporal analysis and frequency-domain analysis on EEG Signals with Matlab.

## SKILLS

**LANGUAGES:** C++, Python, SQL, Javascript, LaTeX, Java, Matlab

**LIBRARIES & TOOLS:** Numpy, Scikit Learn, Matplotlib, TensorFlow, Plot.ly, Machine Learning, CNN