

# Shaquille Momoh

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## Education

### MSc Data Science and Machine Learning – University College London (UCL)

Sept 2017 – Sept 2019

- Thesis: “*End-to-end Deep Learning-based Protein Folding*” — working in the David Jones Bioinformatics Lab (at the Francis Crick Institute), trying to learn tertiary protein structure from raw sequence data.
- Taking following modules:
  - Semester 1: Introduction to Machine Learning; Introduction to Statistical Data Science; Statistical Natural Language Processing.
  - Semester 2: Applied Machine Learning; Advanced Deep Learning & Reinforcement Learning (*taught by DeepMind*); Bioinformatics; Affective Computing & Human-Robot Interaction; Applied Bayesian Methods.

### BSc Computer Science – Royal Holloway, University of London

Sept 2013 – June 2016

- Graduated with a First Class Honours having attained a First Class in all years and in final year project.
- Final year project: “*Breaking the One-Time Pad Used Twice*” – implemented attack on One-Time Pad encryption.

## Projects & Technical Competencies

### Machine Learning

- Research interests:
  - Affective computing for physiological monitoring
  - Structural bioinformatics – protein structure/interaction prediction.
  - Psychiatric diagnosis and treatment
  - AI Safety & Ethics
- Used Python extensively for ML purposes: Implemented vanilla and deep models using NumPy, Keras, TensorFlow, and PyTorch. Some examples:
  - Deep Learning: Human Activity Recognition - ConvLSTM model with ~87  $F_1$  score on a subset of PAMAP2 dataset.
  - NLP: Biomedical event trigger recogniser (based on BioNLP shared task) utilising dependency graphs – SVM model with ~72  $F_1$  score.

### Programming

- Currently building an interpreted programming language from scratch in Go(lang).
- Chatbot to book flights: Python and Node.js using Natural Language Understanding library Rasa.ai.
- Facial Recognition software: Raspberry Pi and Camera Board; Developed in C; used OpenCV libraries.

### Web, DB, DevOps

- Built web apps using Go(lang), Django, and Node.js. Experienced with deploying onto Netlify, Heroku.
- DBMS including various flavours of SQL (MySQL, PostgreSQL, and Oracle).
- Solid understanding of and experience with \*nix like environments such as Linux.

## Employment

### Software Engineer – Barclays

Aug 2016 – Dec 2018

Java Engineer working on a micro-services application to implement a scalable real-time infrastructure to support a key part of the bank's business. Responsibilities included (but not limited to):

- Using Spring Integration to develop rule-based matching engine.
- Setting up scheduled housekeeping jobs to maintain databases.

#### Skills gained:

- Spring (Dependency Injection); Microservices architecture; JProfiler profiling tool; Software Design Patterns; Oracle SQL; Test-Driven Development; Maven (dependency management); Regression Testing; IntelliJ; TeamCity (continuous integration); Autosys (Automated Job Scheduling).

### Computer Science Teaching Assistant – Royal Holloway

Jan 2016 – March 2016

Assisting the course leaders by providing support to first and second year students during lab sessions.

#### Skills gained:

- Being able to explain complex theory effectively to other students; Leadership, making sure that students keep on task during lab sessions.

### Equity Derivatives Risk Developer (Summer Intern) – Barclays

June 2015 – Aug 2015

Summer project was to patch major security vulnerability in production machines.

#### Skills gained:

- Windows Batch Scripting; Bash Shell Scripting; project management; taking ownership; requirements gathering.

## Extra-Curricular & Awards

**2017 – 2019:** Awarded competitive Google DeepMind Scholarship worth £25,000 to fund MSc.

**2016 – 2017:** Volunteered as a mentor to a 14-year-old boy from a disadvantaged background through charity, ReachOut.

**2013 – 2014:** Awarded a place onto the competitive Google Top Black Talent scheme.

**2011 – 2012:** Champion of Hertfordshire County in Athletics - 60m indoors and 100m outdoors in the Under 20 age category.