

# Nicholas Roberts

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## EDUCATION

### University of California San Diego, La Jolla, CA

B.S. Computer Science, Mathematics minor, **Major GPA: 3.94**, **Expected graduation:** June 2019

**Relevant coursework:** Neural Networks, Unsupervised Machine Learning, Software Engineering, Algorithms, Data Structures, Introduction to A.I., Recommender Systems/Data Mining, Statistics for Computer Science

Tutor for Data Science 10 (Principles of Data Science)

## EXPERIENCE

### The Cottrell Lab - Researcher

February 2017 - Present

- Accepted, *Journal of Nature Scientific Reports*:
  - “Small Molecule Accurate Recognition Technology to Enhance Natural Products Research”
- Analyzed performance of deep learning system for natural products research with Scripps Institute of Oceanography
- Explored the effects of artificial experimental noise added to the dataset and showed resistance to gaussian noise
- Improved quality of image dataset by identifying and handling noisy outliers using principal component analysis
- Technologies used: Python, Tensorflow, Lasagne, Theano, SciPy, Jupyter Notebook, Matplotlib

### Teradata - Software Engineering Intern

June 2017 - September 2017

- Developed open source Spark-Teradata connector forked from Databricks' connector for AWS Redshift in Scala
- Designed and implemented Teradata stored procedures in Java to mimic Redshift's UNLOAD and COPY using S3
- Improved training methodology and architecture of deep learning time series model used internally
- Implemented system for updating the time series dataset and fine tuning the deep learning model
- Technologies used: Scala, SBT, Java, Maven, Teradata SQL, AWS, Python, Tensorflow, Flask

### Skqrl - Software Engineering Intern

June 2016 - December 2016

- Developed web crawler to compile needfinding and product data using Scrapy and Selenium
- Designed and implemented an extensible product search solution designed to handle future user search needs
- Technologies used: Python, Scrapy, Selenium, Django, MySQL, JavaScript

### ModSpot - Software Engineering Intern

January 2016 - March 2016

- Implemented new user account, edit profile, and login designs in Objective-C for iOS application
- Refactored analytics code for gathering statistics on app usage, helping designers make more informed choices
- Technologies used: Objective-C, Cocoa Touch, Flurry Analytics

## PROJECTS

### RobotDoesX - Deep neural network system that learns from YouTube videos to produce YouTube content

- Built and trained a deep LSTM model using Keras and Tensorflow trained on YouTube transcripts
- Designed a storage scheme for parallel training checkpoints using RethinkDB for real time updates
- Technologies used: Python, Keras, Tensorflow, RethinkDB, Jupyter Notebook, Matplotlib

### Uncertaintyscript - Scripting language and interpreter for quantum information simulations (HackTech 2016)

- Designed and implemented parser and lexer to use Bash-like syntax for quantum bit operators
- Developed a REPL command line interface for running Uncertaintyscript simulations in a Unix shell
- Technologies used: Scala, Gradle, ScalaNLP Breeze

### Graph Speak - Chatbot for graphically learning common language patterns

- Designed and implemented a probabilistic graphical model for parsing and generating natural language
- Developed dynamic front-end web interface for conversing with the Graph Speak model
- Technologies used: Java, Google App Engine, Google Cloud Datastore, HTML/CSS, Javascript

## TECHNOLOGIES AND SKILLS

**Competent:** Python, Java, Scala, C/C++, Git, Tensorflow, Unix, HTML/CSS, AWS

**Familiar:** SQL, JavaScript, Node.js, OCaml, Agile, Maven, Gradle, Docker, Matlab, Objective-C