

Julia Cao

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EDUCATION

University of California, Berkeley | Berkeley, CA

Bachelor of Arts in Computer Science and Economics

Awards: AP Scholar with distinction (2014, 2015) Honorable Mention of the Mathematic Contest in Modeling (2015)

May 2019

Major GPA 3.8

Coursework: CS61A, CS61B, CS61C, CS70, CS186, Math54, Stat134, Econ101A, UGBA103; (*current*) CS189, Math110, Econ139

SKILLS

Programming Language: C, Python, Java, HTML/CSS,
JavaScript, C++, MIPS, SQL, scheme;

Tools: Apache Spark; Mathematica; scikit-learn
Language: English; Mandarin; Cantonese

PROFESSIONAL EXPERIENCE

BlackRock, Inc | New York, NY

Technology Summer Analyst

Jun 2017 – Aug 2017

- Aladdin Product Group

PROJECTS

Gaussian Classifiers for Digits and Spam

Feb 2017

- Built classifiers based on Gaussian discriminant analysis for digit recognition
- Taking pixel values as features, fit a Gaussian distribution to each digit class using maximum likelihood estimation
- Classified the digits in the test set on the basis of posterior probabilities, with two different approaches: Linear discriminant analysis (LDA) and Quadratic discriminant analysis (QDA), and used k-fold cross validation to tune for the hyperparameters

Relational Database System

Sep 2016 – Dec 2016

- Built a 4-datatype relational database in Java, with a buffer manager, serialization and deserialization of data for storage on pages
- Implemented a B+ Tree index, which supports search, insertion, and iteration through the database
- Achieved efficient function-oriented query using Block Nested Loop Join, Grace Hash Join, and Index Join, etc.
- Supported optimal query plan selection by mapping from a set of tables to a join query operator that corresponds to the lowest cost
- Implemented lock protocol to solve concurrency control problems

Image Compression with Spark

Dec 2016

- Implemented a scheme using the Discrete Cosine Transform (DCT) to perform lossy video compression
- Used Apache Spark to convert each image from BGR color space to YCbCr color space, and to apply DCT, reverse DCT, Quantization, and Dequantization to 8x8 sub-blocks of each image
- Utilized Spark to patch the processed 8x8 blocks back to the original size

Stellar Graph

Apr 2016

- Worked on data visualization for Stellar, a non-profit platform which provides unbanked people with financial access, during a social good hackathon hosted by Treehacks, Calhacks and Microsoft
- Fetched data from Stellar's API using Horizon API, jQuery, and AngularJS
- Built graphic data representations with D3.js and Bootstrap

Craig-o-Motion (Cal Hack2.0)

Oct 2015

- Worked with a group of three and developed a project which adds delivery service to Craigslist, and allows users to track the delivery using Google Maps and CapitalOne API

The Mathematical Contest in Modeling and Interdisciplinary Contest in Modeling

Jan 2015

- Led a group of three to participate in a 5-day math modeling contest hosted by the Consortium for Mathematics and Its Applications
- Built a model to find and simulate the fastest way of distributing medicines in Africa, using Differential Equation Models, Dijkstra Algorithm, Visual C and Mathematica, and presented final results in a 25-page paper
- Competed with over 2000 global college teams and won Honorable Mention (given to the top 15% teams)

LEADERSHIP AND EXTRACURRICULARS

Upsilon Pi Epsilon – Nu Chapter | Berkeley, CA

Professional Development Committee Member

Sep 2016 – Present

Society of Women in Engineering | Berkeley, CA

National Member & PR Committee Member

Sep 2015 – Present