Patrick Yu

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EDUCATION

Bachelor of Arts, Applied Mathematics. 2015
University of California, Berkeley
Concentration: Computer Science

EXPERIENCE

Treasurer, Head Coordinator 2013 - 2015
Project S.M.I.L.E.

- Board member for Project S.M.I.L.E., holding a variety of positions.
- Worked closely with the ASUC, LEAD Center, and Public Service Center, organizing events for 80+ children and mentors.
- Taught a seminar class where I brought in speakers to talk about different topics in education.
- Provided leadership and training to mentors and board members.

Seminar Organizer, Education 97/197 2013 - 2015
University of California, Berkeley

- Organized a seminar which brought in speakers for different topics in education.

PROJECTS

Image Recognition

- Designed and implemented k-nearest neighbor machine learning algorithms to identify handwritten numbers.
- The algorithm examined each pixel of a jpg image and compared it to previously classified examples to vote on the classification of the unknown data.
- Written in Python using NumPy.

Spam Filter

- Trained random forest models to identified emails as spam or not spam.
- The random forests contained sets of decision trees classified each email, voting on the outcome.

Image Compression

- Used singular value decomposition to compress image file size based on percentage.
- Image colors were represented in a matrix column wise so low-rank approximation could be performed.
- Implemented in Matlab.

PageRank

- Constructed a ranking system using a version of the PageRank algorithm that ranked actors using IMDb movie ratings.
- The algorithm crawled through IMDbs HTML source code - extracting the movies ratings to assign a score that factored in movie popularity and other variables.
- Implemented in an iPython notebook and the Beautiful Soup Python package.

TECHNICAL SKILLS

Languages & Software: Python, Java, Matlab/Octave, Latex, R, Ruby, Git, SQL, Spark
Operating Systems: Windows, Mac, Unix

COURSE WORK

- Multivariable Calculus
- Linear and Abstract Algebra
- Differential Equations
- Discrete Mathematics
- Real and Numerical Analysis
- Cryptography
- Data Structures
- Efficient Algorithms
- Probability
- Stochastic Processes
- Machine Learning
- Computing with Data