Lalit Jain

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Summary

- Interested in Data Science, Machine Learning, and applications of mathematics
- Extremely strong mathematics background, strong problem solver, and critical thinker.
- Proficient programmer, experience includes Python, Java, C++, Matlab.
- Effective leadership and organizational skills, demonstrated through Teach for America experience.

Education

PhD in Mathematics, Minor in Computer Science

University of Wisconsin, Madison **8/2010 to Present**

Masters of Mathematics in Pure Mathematics

University of Waterloo, Waterloo ON **1/2007 to 4/2008**

Bachelors of Mathematics in Pure Mathematics, Minor in Combinatorics and Optimization.

University of Waterloo, Waterloo ON **9/2003 to 12/2006**

Work Experience

Data Scientist Intern: Intuit Inc. San Diego **6/2015 to 9/2015**

Worked at the Consumer Tax Group responsible for TurboTax as part of the Data^2 Team.

- Helped research, develop, and implement a contextual bandit algorithm for segmenting users visiting the TurboTax website.
- Created a general purpose Python transformation library for processing, inputting, and cleaning data for use in general data science applications.
- Awarded an internal company spotlight for efforts during the internship. Won an award for 'Best Journey through the Lean Startup Loop' at the intern summit.

Programmer and Co-Founder: Seventh Harmonic LLC **8/2013 to Present**

Cofounded Seventh Harmonic (seventhharmonic.com), a mobile gaming company with the goal of producing completely original mobile recreational software that looks great and plays smoothly.

- Developed Bee-Line, an original puzzle game that combines elements from a maze with Sudoku. Bee-Line currently has over 2000+ users.
- Coded in Java using OpenGL on the Android platform.
- Ran extensive user tests and developed marketing materials.

Teach for America High School Teacher: **San Francisco CA** **8/2008 to 6/2010**

Taught mathematics for two years at Ida B. Wells Alternative School. Made significant gains in test scores and attendance at one of the lowest performing schools in San Francisco.

- Used novel teaching techniques that led to a 20% increase in student attendance and a record setting 80% pass rate, two years in a row, on the high school exit exam required for graduation.
- Created software tools in Python that used machine learning algorithms to process student data. This data was used to determine areas of student weakness, trend profiles, and class clustering.
- Served as advisor to 30 students. Worked with students, parents, and social workers to help students succeed and stay on the path to graduation.

Research Intern: Oak Ridge National Laboratories, Oak Ridge, TN **1/2008 to 4/2008**

Researched instability thresholds at the Spallation Neutron Source particle accelerator.

- Studied experimental beam data using Matlab and C++ for signal processing and visualization.
- Developed mathematical models to experimentally and mathematically determine thresholds for instability.

Adjunct Faculty: University of Waterloo, Faculty of Mathematics **9/2007 to 12/2007**

Taught MATH 135, Classical Algebra, a required course for all mathematics majors.

- Lectured 110 students for three hours a week.
- Worked with other instructors to develop classroom materials including notes, assignments, and exams.

Machine Learning/Programming Projects

NEXT/System for Active Learning: NEXT (nextml.org) is a computational framework and open-source machine learning system that simplifies the deployment and evaluation of active learning algorithms relying on human feedback, e.g. from Mechanical Turk. Example applications include online classification, bandit problems, and multidimensional scaling. The system is optimized for the real-time computational demands of active learning algorithms and built to scale to handle a crowd of workers any size. Project is advised by Robert Nowak at UW-Madison.

Cool Beans: A POS inventory/marketing system for nonprofits and small vendors. The goal of Cool Beans is to incorporate mobile and web technology to create a system that is foolproof and can be learned on the job. Incorporates Facebook and Twitter API's for social media distribution of inventory information and is hosted on Google App Engine. Currently being used by Bombay By Design, and Habitat for Humanity centers in East Tennessee.

Music Hack Day, Boston Fall 2012: Participated with Jordan Ellenberg and Andrew Bridy. We used statistical information from the Million Song Database to create our own composition. Extended this project to use machine learning algorithms for identifying metrics of when two songs were similar.

Achievements

Distinguished Teaching Award, University of Wisconsin-Madison

1st Place Team, 2006 Waterloo Operations Research/Optimization Contest: Worked in a team with two other students to provide the only fully correct solution to a business scenario involving the Cutting Stock problem. Developed the model in C++ /AMPL.

Mike Van Goch Memorial Award: Chosen from all senior pure math majors nominated as outstanding students.

W.T. Tutte, Descartes National Scholarship: Academic scholarship received throughout Bachelor's studies.

Selected Publications

- NEXT: A System for Real-World Development, Evaluation, and Application of Active Learning, Kevin Jamieson, Lalit Jain, Chris Fernandez, Nick Glattard, Robert Nowak, NIPS, 2015.
- Jain, L., and Tzermias, P. (2005) *Beukers' integrals and Apéry's recurrences*. Journal of Integer Sequences. 8: Issue 1, Article 05.1.1.
- Holmes, J., Danilov, V., Jain, L., (2005) *Transverse Stability Studies of the SNS Ring*. Proceedings of 2005 Particle Accelerator Conference, Knoxville, Tennessee, 2254-2256

Hobbies

Classical Guitar, Backpacking, Reading Science Fiction.