Angad Kalra

Vancouver, BC

angadkalra94@gmail.com
angadkalra.com
github.com/angadkalra

Education

University of British Columbia - Faculty of Science, 4th Year — September 2012 – May 2018
Combined Major: **Mathematics and Computer Science**

Core Courses:

- Machine Learning
- Machine Learning – GRAD
- Convex Optimization
- Algorithm Design & Analysis
- Topics in Algorithms – GRAD
- Software Engineering
- Networks
- Calculus I - IV
- Linear Algebra
- Applied Linear Algebra
- Probability
- Stochastic Processes
- Graph Theory

Technical Experience

Centre for Molecular Medicine and Therapeutics – Vancouver, BC — May 2017 – August 2017
Undergraduate Research Assistant

- Developing and applying statistical and computational models for integrating and interpreting diverse types of genomics data, with the ultimate goal of disentangling meaningful molecular associations for common and complex pathologies, such as neurodegenerative and psychiatric disorders.

Code The Change UBC – Vancouver, BC — July 2016 – Present
Software Lead

- Main responsibilities include communicating with organizations and create detailed technical project descriptions, create student teams, deliver technical assessments, communicate with team leads through project life, help solve technical obstacles, and ensure finished project is technically robust and professional.

Vision Critical Communications Inc. – Vancouver, BC — January 2016 – August 2016
Software Development Intern

- In the first four months, responsibilities were fixing defects, writing integration tests, improving test coverage in deployment pipeline and learning new technologies simultaneously. New technologies included ASP.NET MVC, C# and Visual Studio.
- In the last four months, fixing defects and writing tests continued. Additionally, developed in HTML5 and various JavaScript frameworks (Grunt, jQuery, Jasmine) to replace outdated Flash technology that existed in product.

Safe Software – Surrey, BC — January 2015 – April 2015
QA Analyst

- Primarily responsible for identifying potential improvements in their current automated testing system and designing new tests to expand their test coverage.
- Developed in Python 2.7 and interacted with multiple APIs such as GitHub and Amazon AWS.

UBC Computer Science Department – Vancouver, BC — September 2014 - Present
Undergraduate Teaching Assistant

- Teaching tutorials, holding office hours, marking assignments/labs, and assisting the professors during lecture.

Technical Projects

Code The Change UBC – Developing free open-source software for non-profits and charities

- **Verna J. Kirkness STEM Education Program** is a local charity that we built a database & web app for in order to help them organize their data so they could approach donors for funding. We used Python and Django for the web app and MySQL for the database.
- **Big Brothers Vancouver** is a part of an international non-profit organization that matches young males with adult male mentors. We built them an in-house web app, using Python, JavaScript, and Google Maps API, that displays all current locations of clothing donation bins and their owners within a specified radius. Additionally, we recommend locations to place bins based on density within an area.

Peak Predictor

- Implemented a deep CNN similar to the one described in this paper: http://www.biorxiv.org/content/early/2015/10/05/028399 using Python and Tensorflow. The DCNN is being used to predict and discover why a specific protein binds to a certain sequence of nucleotide base-pairs. Network has 3 convolutional layers and 2 fully connected layers, and uses batch normalization, ReLU, max pooling, and dropout.

GAN Text-to-Image Synthesis

- Implemented the Generative Adversarial Network architecture described in the 2016 paper by Reed et al. in order to produce images of flowers and birds given detailed, one-sentence text descriptions. Technologies used were Python 3 and TensorFlow.

Submodular Maximization in MapReduce

- Technical report analyzing the problem of maximizing an unconstrained, non-monotone, submodular set function in MR framework. Attempted to find runtime upper-bound of three well known algorithms: Deterministic and Smooth Local Search, and Double Greedy, in parallel setting.

Technical Skills

- Strong foundation in data structures and algorithms, discrete mathematics, and machine learning.
- Web development using JavaScript, HTML and CSS.
- MATLAB, Python 3, TensorFlow, Julia.

Academic Interests

- Machine learning, computer security, bioinformatics, algorithm design and analysis, and applied mathematics.

Additional Notes:

- I am the Software Lead for the UBC chapter of an organization called Code the Change. We develop free open-source software for non-profits and charities in order to help them achieve their purpose.
- Apart from computer science and mathematics, I actively learn about economics, finance and investing, nutrition, and fitness.
- I volunteer as a big brother for Big Brothers of Greater Vancouver in their Game-On program, which includes attending a local elementary school every week and playing sports with students for a few hours.