Shihan Ai

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EDUCATION

University of Toronto **September 2012 – June 2017**
Honours Bachelor of Science with Distinction, Computer Science, Specialization in Artificial Intelligence
Major GPA: 3.58/4.00 (CGPA: 3.40/4.00)

TECHNICAL SKILLS

Computer Vision & Machine Learning: Python, C++, MATLAB, NumPy, OpenCV, TensorFlow

Web Development: HTML, CSS, JavaScript, NodeJS, React, SQL, MongoDB

Mobile Development: Swift

PROFESSIONAL EXPERIENCE

IBM, Software Engineer Intern **May 2015 – August 2016**

- Designed the backend of a central analytics platform for IBM dashDB using NodeJS and IBM DB2.
- Created infographics using D3.js with live data from dashDB and provided managers with real-time analytics.
- Analyzed the collected data and identified the pain points that customers had with IBM dashDB.
- Developed a tweet scheduler with NodeJS and DB2 to automate the promotion of IBM DB2 on Twitter.
- Automated the collection of video analytics from YouTube using Python, and generated infographics with D3.js to capture the effectiveness of IBM DB2 promotional videos on YouTube.

University of Toronto, Research Assistant **May 2014 – August 2014**

- Developed a script with Python and NLTK that attaches semantic meaning to unstructured web data.
- Created a Twitter bot with Python that responds to movie related tweets with showtimes and recommendations.
- Performed lexical analysis on tweets to understand the structure of natural language on social media.

PROJECTS

Photo Editor & Enhancer **July 2017 - Present**

- Developed a command line tool in C++ and OpenCV that can edit and add effects to photos.
- Tested various smoothing functions and evaluated their effectiveness in achieving a photogenic blurring effect.
- Implemented color mapping effects to user marked objects in an image by utilizing foreground extraction techniques and by processing the RGB images in the HSV color space.
- Currently creating an iOS mobile application using Swift that employs optimized foreground extraction techniques to edit and enhance high resolution photos taken by cameras on modern mobile phones.

Optimized Interactive Foreground Extraction **June 2017 – July 2017**

- Developed an algorithm using Python, NumPy, and OpenCV that can classify pixels in an image as either the foreground or the background of the image.
- Independently researched and implemented methods to decrease processing time when processing HD photos.
- Performed benchmark tests against traditional foreground extraction methods such as GrabCut and improved the processing time of 12-Megapixel (3024 x 4032) images from an average of 74 seconds to 3.6 seconds.

Exemplar-Based Image Inpainting **May 2017 – June 2017**

- Independently researched and implemented an algorithm in Python, NumPy, and OpenCV that can crop out user defined areas of an image and fill the cropped-out areas with believable textures.
- Analyzed and identified the optimal hyper parameters to produce results with little or no optical artifacts.
- Identified and applied the algorithm to real world applications such as acne removal in photos.

Seam Carving **November 2016 – December 2016**

- Implemented an algorithm in Python that performs content-aware image resizing by removing seams comprised of the least significant pixels in an image.
- Utilized dynamic programming to efficiently find seams with low significance.
- Identified and tested the effectiveness of various definitions of pixel significance.