SEBY JACOB

Deep Learning and Computer Vision

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BIO

I am a deep-learning engineer focusing on computer vision. I have designed, trained and deployed models for anomaly detection, video and image understanding, object detection and identification, multiple object tracking, image and video segmentation, and image classification. For the past three years I have been working within the deep-learning and computer vision field. Previously, I spent two years working in an academic research capacity and simultaneously provided tutoring to over 400,000 students through Udemy. Following the conclusion of my academic pursuits, I have spent the past year working as a professional developer within the same field. In this capacity, I have been using Python with OpenCV, Keras, TensorFlow and PyTorch for training and testing deep-learning models and Docker, Cloud Services, Kubernetes, Django, REST and Flask for deploying and orchestrating the models in production at scale.

PROFESSIONAL EXPERIENCE

Deep Learning Engineer

Stockwell AI (Venture backed AI retail ecosystem)

H Jul 2019-Present

Montreal, CA

- Built state of the art AI for Stockwell's cashierless stores.
- Creating custom deep-learning models to understand customer interaction with store using transaction video to generate receipts using Python, OpenCV, TensorFlow and Keras.
- Building scalable platform agnostic micro-service infrastructure and pipelines on the cloud to deploy models in production using PubSub, Docker, Kubernetes, REST and Flask.
- Developed end to end pipelines to perform automated labelling requests, model retraining and deployment cycles.
- Designed dashboards and monitors to evaluate model performance in production.
- Trained models to perform video understanding and segmentation, object detection and classification, semantic segmentation and multi-object tracking.
- Doubled the accuracy of Stockwell's deep-learning stack, while pioneering the movement from fully human verified transactions to autocharging high-confidence transactions with 99.61% accuracy.

ASIC Engineer **Broadcom Corporation**

🛗 Sep 2015-Aug 2016

9 Bangalore, IN

- Performed protocol analysis and testing of in-home chip modules using System Verilog and C.
- Verified UART, USB and PCIE modules.

Software Designer **Cisco Systems**

H Aug 2013-Sep 2015

switch using C.

Bangalore, IN QoS module feature development and maintenance for the Nexus 3K



EDUCATION

M.S. in Electrical Engineering **McGill University**

🛗 Aug 2016 - Feb 2019

CGPA: 4.0/4.0

B.Eng. in Electronics Engineering

Birla Institue of Technology and Science

🛗 Aug 2009 - Aug 2013

CGPA: 8.9/10.0

FREELANCE WORK

Remote TA and Workshop Creator **SuperDataScience**

🛗 May 2017-May 2019

- Answering student gueries on DL and ML
- Traffic classification using CNNs
- Optical character recognition using CNNs

TECHNICAL SKILLS

	Programming Languages Python, Matlab, C, C++, System Verilog
Ũ	Packages OpenCV, Keras, TensorFlow, PyTorch, Scikit-Learn
	Utilities Django, MySQL, REST, Flask, Google Cloud, Amazon AWS, Kubernetes, Docker
¢°	Subjects Deep-learning, Machine-learning, Computer Vision, Statistical Models

ACADEMIC PROJECTS

Anomaly Detection from Videos Masters Thesis

🛗 May 2017-Feb 2019

♀ McGill University, Montreal

- Development of a novel algorithm to perform anomaly detection from videos using a convolutional autoencoder.
- Investigated and perfected a method using adaptive clustering in the latent encoding space.
- Anomaly detection using distance metrics in the latent space and structured dissimilarities between the input and decoder output.
- Developed a synthetic, fully open-source, variable length, customizable dataset to test anomaly detection algorithms.
- Trained and tested the models using Python through TensorFlow, OpenCV, Keras and Scikit-Learn.

Image Inpainting

Course: IFT6266-Deep Learning

Heb 2017-Apr 2017

• Universite de Montreal, Montreal

- Developed an algorithm using deep-learning to fill in missing parts of an incomplete natural image using additional text captions describing the image.
- Used a CNN based Conditional GAN for generating the images which encoded the captions using LSTM.
- Blogged the progress and steps: https://sebyift6266.wordpress.com/
- Programmed in Python using Keras and Theano.

MOST PROUD OF

Stockwell's Tech

From completely human verified transactions to autocharging highconfidence transactions with double the accuracy in inferences.

- Cotting up a

Setting up an educational charity trust Established in 2009, the trust awards annual scholarships to top performing students in need in Thiruvananthapuram, Kerala, India

Continued learning Currently studying app development with Flutter, game and augmented reality development with Unity, music and audio production with Ableton

LANGUAGES

English French Hindi

Live.



REFEREES

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Prof. Martin Levine

Ø McGill University

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EXTRACURRICULARS

Competitive Soccer Player

Guitarist

Stand-up Comic and Podcast Host