SEBY JACOB

Deep Learning and Computer Vision

@ sby.jcub@gmail.com
+1-514-431-9650
Montreal, QC
https://www.linkedin.com/in/seby-jacob-08a1bb31
https://github.com/BitFloyd

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)

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 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

Aug 2013-Sep 2015 Bangalore, IN

- QoS module feature development and maintenance for the Nexus 3K switch using C.

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 queries on DL and ML
- Traffic classification using CNNs
- Optical character recognition using CNNs

TECHNICAL SKILLS

Programming Languages
Python, Matlab, C, C++, System Verilog

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

Feb 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 high-confidence transactions with double the accuracy in inferences.

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 Live.

LANGUAGES

English
French
Hindi

REFEREES

Jacob Greenberg
@ Freemarkets AI
jacob@greenberg.nu

Prof. Martin Levine
@ McGill University
levine@cim.mcgill.ca

EXTRACURRICULARS

Competitive Soccer Player

Guitarist

Stand-up Comic and Podcast Host