# SALIK NADEEM

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# **EDUCATION**

Oshawa, Ontario Ontario Tech University Jan 2019 – Aug 2020 (expected)

- MSc in Computer Science (specializing in computer vision and deep learning) CGPA: 3.86/4.00
- Thesis: Creating a CNN+RNN architecture which learns view-invariant action representations using a dynamic loss function based on homoscedastic uncertainty of different tasks for classifying human actions in videos

Lahore, Pakistan LUMS University Sep 2008 – Jun 2012

• BSc in Computer Science. In-major GPA: 3.15/4.00

# **TECHNICAL SKILLS**

- Experience with supervised recurrent neural networks (RNNs) and convolutional neural networks (CNNs)
- Strong command on PyTorch, TensorFlow, and Keras
- Strong experience of defining custom layers and backpropagating through them
- Masters in Computer Science with a focus on Deep Learning (Computer Vision) and experience in language modelling and speech recognition

## **TECHNICAL EXPERIENCE**

#### **Projects**

- Social distancing tool with depth (May 2020) Built a simple social distance violation detection tool using Fast-RCNN, OpenCV and a monocular depth estimation algorithm developed using Pytorch. The tool can take a video as input and highlight people who are close together and are not maintaining social distance.
- Using Deep Neuro-evolution to train Deep Reinforcement Learning Agents (Dec 2019) Trained three environments (Cart pole, Mountain car and Pendulum) from OpenAI Gym solving all environments in 3-5 generations trained in a few minutes on a GPU using a variant of Genetic Algorithms.
- MS course project Concolic Testing for Deep Neural Networks (Nov 2019)- Made neural networks more robust to adversarial attacks and increased their neuron activation coverage resulting in more comprehensive testing on popular toy datasets MNIST, Fashion-MNIST and Cifar10. Used Python, Tensorflow and Keras.
- MS course project Twitter Network Analysis (Feb 2019)- Algorithm creates a network graph of all users involved in the dissemination of a query (keyword, hashtag, meme, etc.) and analyzes trends/connections between the users. Built with Python, Tweepy Twitter API, Ploty, Geopy and NetworkX.
- Real-time gesture tracking with online learning (Dec 2012) implemented the TDL algorithm based on a LK tracker, a sliding window detector and random forests for feature representation. Developed in C++ using OpenCV and also ported to iOS platform achieving ~6-5 fps on iPhone 2/3.

#### **EMPLOYMENT**

### **Graduate Teaching Assistant**

Ontario Tech University, Oshawa, Ontario

Jan 2019 - May 2020

- Courses taught: Operating Systems (C/C++), Scientific Data Analysis (Python, Pandas, NumPy, Matplotlib),
   Systems Programming (C language, operating systems, Linux, network programming, sockets)
- Conducted laboratories and tutorial sessions
- Average Ratings of 4.3 out of 5.0 from anonymous student feedback surveys

#### **Cofounder & Lead AI Engineer**

## Homestove, Lahore, Pakistan

Oct 2016 - May 2018

- Homestove was Pakistan's first online platform available on web, Android and iOS, enabling the buying and selling of affordable homecooked meals
- Worked with usage data (timestamps, locations, active time, etc.) from the web, Android and iOS applications and thousands of users (chefs and buyers) to help in making key business decision, improve order fulfillment to from 70% to 95% and optimize "vehicle route algorithm" for supply side operations
- Developed a central dashboard using Javascript stack, AngularJS, D3JS, MySQL and Node.JS for running daily operations, managing chefs, monitoring orders, fulfillments and logistics fleet management resulting in a lean and optimized workflow for all teams
- Developed and executed a prototype machine learning system including system architecture, data collection, visualization and iterative testing in Python to enable workload prediction every day for the logistics team

# **ADDITIONAL CERTIFICATIONS AND AWARDS**

- Winner of Intel & OpenCV's Spatial AI Competition (Phase 1) (Jul 2020) Selected as a winner from over 230 competitors for developing a social distancing model using OAK-D.
- Deep Learning specialization (Mar 2020) by deeplearning.ai on Coursera
   Courses Completed: Neural Networks and Deep Learning, Improving Deep Neural Networks: Hyperparameter
   tuning, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural
   Networks, Sequence Models.
- IEEE Xtreme Endurance Programming Competition (Oct 2011): Ranked 30th among 1500+ teams from 65 countries in a 24-hour coding challenge. Solved all problems using C++.