Patel KRUT

Pursuing MSc in Visual Computing | Machine Learning/Deep Learning Enthusiast

linkedin.com/in/krutpatel github.com/iamkrut
+1 778 512 5941 @ krutp@sfu.ca
Porfolio - https ://iamkrut.github.io
Medium Blog - https ://medium.com/@krutpatel

Visual Computing graduate student at Simon Fraser University, interested in Computer Vision and Natural Language Processing. Passionate about applications of Machine Learning and Deep Learning to solve real-world problems. Worked as a Game Developer and Designer in the past.

Technical Skills

Machine/Deep Learning	**PyTorch**, **Tensorflow**, **Keras**, **Scikit-learn**, **Amazon Sagemaker**, **Jupyter**
Programming Languages	**Python**, **C**, **C++**, **Java**, Microsoft .Net (**C#**)
Web Technologies	**HTML5**, **CSS3**, **Javascript**, **jQuery**, **PHP**, **JSP**, **ASP**, **mySQL**
Databases	**SQLAlchemy**, **Amazon S3**, Microsoft SQL Server, MySQL, PostgreSQL, MongoDB,
Development Tools	**Unity3D**, Eclipse, **Visual Studio Code**, Android Studio, **GIT**, **PyCharm**, **JIRA**, **Jenkins**
Art Tools	**Photoshop**, **Illustrator**, GIMP, **Blender**, MagicaVoxel

Work Experience

Intern Machine Learning Software Engineer - Flipboard
May 2019 - Aug 2019

https ://flipboard.com/

Worked as a part of the recommendations team at Vancouver. Exposed topic extraction metrics to internal tools for topic curation team, integrated features in slack chatbot to increase productivity, developed a deep learning architecture for classifying documents based on user's topic affinity to create responsive personalization filters for user feeds. Picked up technologies like Amazon Sagemaker, Amazon S3, SQLAlchemy, React and GraphQL

Freelance Game/Software Developer
Oct 2017 - Jan 2018

https ://iamkrut.github.io

Developed couple of game projects during this period. Helped me gain a good grip over many technologies related to design and programming games like Unity3d, Blender, MagicaVoxel, GIMP, Photoshop, Illustrator and Aesprite

Intern Game Developer - Pardy Panda Studios
May 2017 - Sept 2017

https ://www.pardypanda.com

Learned to design, develop and test mobile games. Helped broaden my knowledge of software development cycle and testing methodologies, even improving my programming and logical skills

Projects

Ongoing | **Convolutional Siamese Network for Writer Independent Offline Signature Verification , Computer Vision Project, SFU**

- Base Model - SigNet model with contrastive loss
- Model variation 1 - using triplet loss
- Model variation 2 - using binary cross entropy loss where the network outputs the L1 component-wise distance between feature vectors outputted by each Siamese twin
- Datasets : CEDAR, GPDS300, GPDS Synthetic SignatureDatabase and BHSig260

Pytorch | Pillow | Numpy | Matplot

Sep Oct 2019 | **Natural Language Processing Projects, NLP Projects, SFU**

- en segmentation unigram model
- zh segmentation unigram, bigram and trigram model with Jelinek Mercer and Backoff smoothing
- Lexical substitution with retrofitting word vectors

Pytorch | Numpy | PyMagnitude

May
Aug 2019

Document Classification based on User Topic Affinity, Internship Project, FLIPBOARD

- Document-User data extraction
- Extracting Topic Embeddings using Matrix Factorization of Topic-Topic co-occurrence matrix
- Visualizing Embeddings using t-SNE
- Developing Two Tower Embedding styled Deep Learning Architecture for classifying documents based on user topic affinites

Pytorch | Scikit-learn | Pandas | Parquet | Amazon Sagemaker | Amazon S3 | Numpy | Matplot | Plotly

March
April 2019

3D Object Generation using GAN, Practices in Visual Computing 2 Project, SFU

- 3D Generative Adversarial Networks
- Generate 3D hand-written digits, represented in voxels.

Pytorch | OpenCV | Numpy | Matplot

Feb
March 2019

Image Inpainting using UNet and ResNet, Practices in Visual Computing 2 Project, SFU

- Reconstructing lost or deteriorated parts of images using CNN
- Data Augmentation
- MSE loss function
- UNet and ResNet models

Pytorch | OpenCV | Numpy | Matplot

Jan
Feb 2019

Image Segmentation using UNet, Practices in Visual Computing 2 Project, SFU

- Locate objects and boundaries (lines, curves, etc.) in images
- Batch Normalization and Data Augmentation
- Cross entropy loss function
- UNet model

Pytorch | OpenCV | Numpy | Matplot

Nov
Dec 2018

Sentence Classification, Machine Learning Project, SFU

- Natural language processing
- Binary text classification
- Comparing CNN with Traditional Models
- Predicting if a question on Quora is sincere or not
- Dataset - Quora questions from a Kaggle competition

Pytorch | TorchText | Scikit-learn

Blogs

Eigenvectors and Eigenvalues - All you need to know — November 30th, 2019

Medium blog post

Detailed explanation on eigenvectors and eigenvalues with illustrated examples

MNIST Handwritten Digits Classification using a Convolutional Neural Network (CNN) — September 7th, 2019

Medium blog post

Implementing a CNN to classify MNIST handwritten digit images using PyTorch

Education

Sept 2018 - Present — Professional Master of Computer Science (Visual Computing Specialization), *Simon Fraser University*

July 2013 - May 2017 — Bachelor of Computer Science and Engineering, *Gujarat Technological University*

Awards

Sept 2018 — Late Shri Dewang Mehta IT Awards - 2017, *NASSCOM*

Dec 2018 — Titled best project - Sentence Classification using CNN Project, *Artificial Intelligence student showcase SFU*