VIVEK SURESH RAJ

RECENT UNIVERSITY GRADUATE – JAN, 2021

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SKILLS

Languages:
Python, C, C++, HTML/CSS, XML.

ML-Libraries:
Tensorflow/Keras, Scikit-learn, Xgboost, nltk, SpaCy, Transformers, HuggingFace, OpenAI

Databases:
SQL, PostreSQL, MongoDB and Neo4j.

Tools:
Streamlit, Android Studio, VMWare

Linux:
Kali-Linux for ethical hacking.

EDUCATION

Master of Engineering - Geomatics
Data science specialization
University of Calgary, Calgary, AB
Sep 2019 - Jan 2021

Post Graduate diploma program – Electronics and Embedded systems
Fanshawe College of applied science and technology
Sep 2018 – August 2019

Bachelor of Engineering - Electrical and Electronics Engineering

Kumaraguru College of Technology, India.
Aug 2013 – Apr 2017

SUMMARY

Recent graduate with 2 year of academic machine learning experience with university projects, course works and research works. An aspiring machine learning scientist with focus on NLP.

- **GitHub portfolio:** vivii9630
- Hands-On experience with machine learning frameworks.
- End-to-end [ML-Pipeline] implementation of machine learning projects.
- Team player with excellent communication and inter-personal skills.

EXPERIENCE – Graduate Projects

CONTROLLED TEXT GENERATION ON DECODER – Beam search, greedy search & k-sampling.

University of Calgary, Calgary, AB / September 2020 – December 2020

- Implemented seq2seq learning architecture with homologous encoder and decoder architecture for contextual text generation.
- Evaluated the generated texts with certain metrics and proposed suitable control methods to improve the text generation system.
- Worked on effective methods to contain latent semantic meaning of source sequence and to overcome long term dependency parsing.
- Reported the findings, solutions/strategies to control texts for human-like text generation, eliminate duplicates and engagingness of generated texts.

[Click here for accessing the project]

TIME-SERIES PREDICTION AND GENERATION OF SINUSOIDAL FUNCTION – RNN Modelling

University of Calgary, Calgary, AB / May 2020 – July 2020

- Demonstrated idea of 'Time-series modelling' framework using SimpleRNNCell with TensorFlow.
- Presented results on jupyter notebook containing framework design and development of Sinewave with a set of training recipes.
- Reported the results and discussed on effects of LSTMCell for SimpleRNNCell.

[Click here for accessing the project. Deep learning frameworks: TensorFlow, Keras,]

SKILLS AND EXPERIENCES

University of Calgary, Calgary, AB

- Dimensionality reduction to identify principal components with high variances. Projection of dominant eigen values to interpret linear transformation of eigen vectors in vector spaces corresponding to the labels.
- Achieved SOTA results in machine learning in solving real-world problems using simplified neural networks by KNOWLEDGE DISTILLATION of neural network.

WORK EXPERIENCES

APPLICATION BASED PROJECTS

Calgary, AB / September 2019 – Present

DINO – personal voice assistant for University of Calgary.

- Performed count-vectorization with TF-IDF on web-scrapped corpus for relevant feature extraction.
- Implemented cosine-similarity b/w vectors to build Rule-based voice assistant. ***(Tools & packages used: pyttsx3 – pyaudio driver installed, speech recognition, weather, newspaper, datetime, webbrowser, wikipedia)***

GENERATIVE AI CHATBOT WITH GPT2 MODEL – OpenAI

- Implemented pre-trained GPT2 model to generate coherent texts for question answering application. ***(Submitted: 12 MAY 2021)***

HONORS & PUBLICATIONS

- **PyPi –** Python library file to compute & analyze structured DataFrame for NaN values in the dataframe. *[Licensed and Published: PyPi-vivek2dropoffnan v0.0.1]*
- Represented ESRI event – Developed on User Interface part of webapp for developed for health industry from University of Calgary. *[Team – "You know who", February 2020]*
- Vector similarity score-based voice assistant for querying on the University of Calgary – click here for accessing paper
- Seq2seq learning based chatbot with CORNELL dataset using Encoder decoder architecture with attention layer – click here for accessing the paper
- Participated in Hackathon on "Hypothesis testing using z-score and T-test" by *MachineHack* – May, 2020.

REWARDS

DRISYAAN – VEHICLE PROTOTYPE FOR PHYSICALLY DISABLED PEOPLE

Kumaraguru College of Technology, Coimbatore, India / Aug 2016 – Apr 2017

- Developed an android application for facial recognition using GOOGLE VISION API.
- Developed and deployed the program in SoC with INTEL ATOM processor to breakout board for driving motor using L293D under supervision of Asst Prof. Kaliyappan. (Tools used: Android studio, Putty, proteus, WINSCP)

[*Awarded with department's best-project of the year, 2017*]

REFERENCES

1. **Dr. Emmanuel Stefanakis,**
   Professor and Head, dept of Geomatics,
   Schulich School of Engineering, University of Calgary
   2500 University Drive NW, Calgary, Alberta, Canada T2N 1N4
   Phone: +1 403 220 4113
   Email: emmanuel.stefanakis@ucalgary.ca

   Research areas:
   - Spatial data science, Data analytics and AI, Geospatial AI.

   Courses completed:
   - ENGO645 – Spatial Databases and Data mining
   - GRAD601 – Graduate Project (Geospatial AI)

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2. **Dr. Maheswari,**
   Professor and Head, Dept of Mathematics,
   Kumaraguru college of technology,
   Coimbatore, Tamil Nadu, India
   Email: maheswari.k.sci@kct.ac.in

   Research areas:
   - Neural Networks, Deep learning, Robotics and Stability analysis.

   Courses completed:
   - Numerical methods and Statistics
   - Partial differential equations and transforms.
