Vasudev Sharma

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Education

University Of Toronto **Sep. 2021 – Dec. 2022 (Expected)**
Master of Science in Applied Computing (Computer Science) *Toronto, Canada*
GPA: 4.0/4.0

VIT University **Sep. 2016 - June 2020**
B.Tech in Computer Science *Vellore, India*
CGPA: 9.49/10.0

Relevant Coursework

- CSC2515 Machine Learning (Audit)
- CSC2541 ML in Healthcare
- CSC2537 Info. Visualization
- CSC2547 Computer Vision
- CSC2516 Deep Learning
- CSC2511 NLP (Audit)

Experience

University of Toronto **Sept. 2021 – Present**
Teaching Assistant *Toronto, Canada*

CSCC11:Introduction to Machine Learning *Winter 2022*
CSCA20: Introduction to programming *Fall 2021*

NeuroPoly, University of Montreal **Nov. 2020 – Aug. 2021**
Machine Learning Engineer *Montreal, Quebec, Canada*

- Developed an open source software AxonDeepSeg - Axon / Myelin segmentation using Deep Learning.
- Implemented and integrated U-Net model for segmentation on Keras framework for histological data (SEM and TEM).
- Fine-tuned models resulting in a performance gain of **5%**, refactored **40% codebase** and performed an exhaustive comparative analysis with state-of-art methods.
- Researched and incorporated dynamic functionality for handling overlapping patch effect on microscopy images

CNRS, CerCo lab **Dec. 2019 - June 2020**
Visiting Deep Learning Research Intern *Toulouse, France*

- Researched the influence of EEG on stimulus, stimulus on EEG, and EEG on EEG primarily for the occipital electrodes.
- Improved correlation value(r) by **13%** and improvised on the next **1 sec horizon time steps** in comparison to the baseline models using state-of-the-art time series models.
- Experimented the study; *"In Alpha Oscillations strong perceptual echoes exist at 10Hz frequency"* with various architectures - 1D CNN, LSTM, WaveNet, Conv-LSTM, ARIMA, and an ensemble of these models.

Projects

DiSCeRn: Disease-Contrastive Representations from Multi-Modal Data | *Python, PyTorch* **December 2021**

- Leveraging self-supervised contrastive learning MoCo, we proposed DisCeRn, a framework for learning representations from multi-modal medical data for representation learning.
- Set up baselines and evaluation metrics for fine-tuning DiSCeRn on CheXPert, MIMIC and MIMIC-CXR dataset.

Publications

AxonDeepSeg: Automatic Myelin and Axon Segmentation Using Deep Learning **July 2020**
() *OHBM 2020, Canada*

High Dimensional Fuzzy Outlier Detection **Aug. 2019**
() *ICONIP2019, Australia*

A Fuzzy Constraint Based Method for Outlier Detection **Aug. 2019**
() *ICIC2019, China*

Technical Skills

Languages: Python, Shell Script, HTML
Developer Tools: VS Code, Google Cloud Platform
Technologies/Frameworks: PyTorch, NumPy, Scikit-learn, Pandas, Keras, OpenCV, Git, Docker, GitHub, AWS

Achievements / Awards

Vector Scholarship in Artificial Intelligence 2021 **Sept. 2021**
Scholarship (🔗) *Vector Institute and University of Toronto*

Charpak Lab France Scholarship **Sept. 2020**
Award and Scholarship (🔗) *Government of France*

Special Achiever Award **2019**
Award (🔗) *VIT University*