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Parag Jain

Personal Data

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Research Publications

July 2020	**A Novel Approach to Classify Cardiac Arrhythmia Using Different Machine Learning Techniques** at ICICC 2020 An ensemble approach to predict and classify arrhythmia into one of 16 categories. This is a SCOPUS-indexed publication.
June 2020	**Heart Rate Monitoring System** at ICEES 2020 A biomedical wearable to transmit heart rate readings from patient to the doctor in real-time using cloud. This is a SCOPUS-indexed journal publication.

Work Experience

Apr 2023-Present	**Data Science Intern at Dreeven Technologies**, *Montreal* Using various machine learning techniques to understand user adoption path on Dreeven platform. Performing analysis and visualization of historical and live clickstream data of the users of the platform.
Nov 2020-Aug 2022	**Deep Learning Software Engineer at Intel Corporation**, *Bangalore* Enabling ISV and SI with development, deployment, and optimization of industry-oriented deep learning end use cases on CPUs, GPUs, and accelerators. Assessing and selecting the most appropriate precision levels for models (FP32, FP16, INT8) based on workload requirements, acceptable performance KPIs (accuracy vs throughput trade-off), and cost-effectiveness.
Jan 2020-Oct-2020	**Software Engineer at Intel Corporation**, *Bangalore* System integration and validation of a Linux based laptop. Worked on building Linux kernel and OS from its source code and enabling and validating interaction of BIOS with OS using ACPI.
Aug 2019-Dec 2019	**Software Engineer at Intel Corporation**, *Bangalore* Responsible for validation, automation and debugging of features as per the requirement of Chromebook customers across various stages of Chromebook development.
July 2018-July 2019	**Firmware Engineer at Intel Corporation**, *Bangalore* Emulating hardware and developing firmware and driver to interact with the RF Subsystem (5G Modem)

Internship Experience

Jan-July 2018 | RF Driver Intern at Intel Corporation, *Bangalore*
Working with Communication Processor and Radio Access Technologies. Involves hardware emulation, interaction with firmware, and working with SoC.

Jan-July 2018 | Subject Matter Expert at PES University, *Bangalore*
Machine Learning Hands-On Using Python
The course consists of Tutorial Videos, Online Content, Hand-written notes and Offline Group Discussions for enhanced understanding of Machine Learning concepts by implementing algorithms in Python.

Aug-Dec 2017 | Member at Centre of Data Science and Applied Machine Learning, *Bangalore*
Scene Understanding
Combination of recent advances in CV and Machine Translation to produce image captions. Uses CNN, RNN and Transfer Learning.

May-Jul 2017 | Data Science Intern at Mantra.AI, *Bangalore*
Implemented CNN, GAN, RNN, and LSTM using Tensorflow and NumPy.

Jun-Jul 2016 | Mentor at Microsoft Mobile Innovation Lab, *Bangalore*
Classification of Cardiac Arrhythmia
Prediction into 15 classes using features from ECG.
Oxysat, a biomedical wearable
An end to end system to detect *Obstructive Sleep Apnea*.

May-Jul 2016 | Summer Intern at KANoE, *Bangalore*
Know your Politician, a public portal
Ranking politicians to assist citizens in choosing better representative.

Jun-Jul 2015 | Summer Intern at Microsoft Mobile Innovation Lab, *Bangalore*
m-Beats, an IoT wearable
Designed and developed a biomedical wearable to alleviate problems caused due to medication errors.

May-July 2015 | Member Technical Staff at Ordell Ugo, *Bangalore*
Understanding and implementing computer vision concepts using OpenCV.

Education

Sep,2022 - Present | Professional Masters in Computer Science (AI), **University of Montreal + MILA**, Canada

May 2018 | Bachelor of Technology in Computer Science, **PES University**, India
Gpa: 9.47/10

Technical Proficiency

PROGRAMMING LANGUAGE:	Python, Java, C, C++, R
DATA ANALYSIS TOOL:	Tableau, Jupyter Notebook
DATA PROCESSING LIBRARIES:	Pandas
DATA VISUALIZATION LIBRARIES:	Matplotlib, Seaborn
IMAGE PROCESSING LIBRARIES:	OpenCV, Numpy
DEEP/MACHINE LEARNING LIBRARIES:	PyTorch, Tensorflow, Keras, Scikit-learn, NLTK, Langchain
EXPERIMENT TRACKING TOOLS:	Comet.ML
MODEL OPTIMIZATION TOOLS:	Intel OpenVINO
BIG DATA TOOLS:	Hadoop
DEPLOYMENT TOOLS:	Docker
CLOUD TECHNOLOGY:	Google Cloud Functions
WEB TECHNOLOGY:	HTML, CSS, Javascript, Bootstrap
FRONT-END LIBRARIES:	Tkinter, Flask, Streamlit
DATABASE:	MySQL, PostgreSQL, MongoDB, HiveQL, Firebase Firestore(NoSQL)
MOBILE APP DEVELOPMENT:	Android Studio IDE
MICROCONTROLLER:	LinkIt One, Arduino UNO, Intel Galileo, Raspberry pi 2
SYSTEM TOOLS:	PuTTy
OPERATING SYSTEM:	Windows, Linux-based distribution(Ubuntu, ChromeOS, Android)

AI Project

JAN-MAR 2023 | **Character Region Awareness for Text Detection**
Detecting text region of any language present in any real-world image one character at a time.

JULY-AUG 2020 | **Cricket players detection and tracking**
A computer vision and deep learning based solution to detect and track players of Indian Women Cricket Team in real-time. Drone footage taken at the international stadium is used as input. Intel OpenVino is used for optimal performance on Intel hardware while inferencing.

MAY-JUNE 2020 | **Real-time face mask detection**
A deep neural network based solution to detect if a person is wearing a face mask. The real-time video feed is obtained from an IP camera over the network and multi-threading is used for over-coming producer-consumer problems.

AUG-DEC 2017 | **Scene Understanding**
Combination of recent advances in CV and Machine Translation to produce image captions. Uses CNN, RNN and Transfer Learning.

JAN-MAY 2017 | **Finger-print recognition**
Using DIP techniques to recognize finger-print.

JAN-MAY 2016 | **Content Based Image Retrieval System**
An image based search engine.

JAN-MAY 2016 | **Four-Point Perspective Transform Scanner**
An application of Canny-Edge detection, Contour-detection, and four-point transform to make scanning of any document a delight.

AUG-DEC 2015 | **Face Recognition**
An OpenCV based project to train on Yalefaces dataset and recognize faces using Principal Component Analysis.

Data Science Project

Oct-Dec 2022	**Analysis of historical and live games played in National Hockey League in North America** An end-to-end data pipeline was created (from acquiring cleaning, visualizing, modeling, analyzing, to presenting data) to gain insights about the series of ice-hockey game played as part of NHL in North America
Feb-Apr 2017	**Empirical Analysis on Dating Patterns** A study conducted to determine the science behind dating.

Scholarships and Honors

Jan 2023	**UdeM Exemption Scholarship for International Students** for pursuing "Masters in Computer Science (AI)" at the University of Montreal, Canada
Sep 2022	**UdeM Exemption Scholarship for International Students** for pursuing "Masters in Computer Science (AI)" at the University of Montreal, Canada
Jan 2020	**Intel IOT Edge AI Scholarship** to leverage the potential of edge computing and perform fast-track development of high-performance deep learning inference applications.
May 2019	**Best of Design, Test and Technology Conference 2019 Award** for teaching "Machine Learning for Everyone" at Oregon Convention Center, Portland conducted by Intel Corp.
May 2019	**2019 MPSG Division Recognition Awards** for developing an intelligent PCT search Host test framework which automatically validates 7000+ PCT table entries. Found critical issues in PCT which could have blocked use cases covering multi-band combinations.
March 2017	**C.N.R Rao Merit Scholarship** for outstanding performance in **every** year of Engineering.
Aug. 2012	Felicitated with **Swami Vivekananda Educational Award** by Vivekanda Yuva Vedik Society.
July 2012	**Best Student in Academics** for prolific performance in **AISSE**.

Open Source Contribution

Author of Python module named **utilities**. A module to make image processing easier.