Sanat B Singh

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Career Objective

I am passionate and motivated about the use of deep learning in various fields, my research interests are interdisciplinary comprising of Computer Vision, Biomedical Imaging and AI for Social Good and Healthcare.

Education

Computer Vision Nanodegree May 2020 - Present

Udacity

Improving on my knowledge in Computer Vision. (Currently Ongoing)

Bachelor of Technology (Computer Science & Engineering) 2017 - 2021

Kalinga Institute of Industrial Technology

8.77 - (Overall till end of 5th Semester)

Class XII - SSSC (Senior Secondary School Certificate) 2016 - 2017

CBSE

83.6% in Class XII - CBSE Board - The Khaitan School, Noida

Class X - SSC (Secondary School Certificate) 2014 - 2015

CBSE

9.8 CGPA - CBSE Board - Khaitan Public School, Noida

Experience

Research Intern July 2020 - Present

University of Houston Downtown

Working as a research intern under Dr. Hong Lin at the Department of Computer Science and Engineering Technology, University of Houston Downtown, USA.

Instructor May 2020 - July 2020

CampK12

Worked as a part-time instructor at CampK12 introducing kids to the world of coding and teaching them app development, web development, VR/3D games development etc. Gained very valuable communication and time management skills along with insights into the edutech domain.

Co-Founder 2019 - Present

Zyik.ML

Founded Zyik.Ml along with my friend & colleague Aayush kumar with an aim to provide AI based healthcare services all over the world. It started as a college project but now is a registered startup under Ministry of Micro, Small and Medium Enterprises - Government of India.
Responsible for Deep Learning Model Development & Research.

Machine Learning Instructor (Core Team) November 2018 - Present

Konnexions

Part of core team. Working as an instructor teaching Machine Learning. Konnexions is the official Web Development IT society of KIIT working under KSAC (KIIT Student Activity Centre) with aim to provide and foster professional advancement opportunities among individuals and provide a way to keep up with current technologies and trends.

Core Team Member - (ML Domain) March 2019 - Jan 2020

DSC KIIT

Member of DSC KIIT with Machine Learning as domain. Developer Student Clubs is a flagship program by Google for aspiring student developers. Conducted workshops on Google Cloud and Basics of Machine Learning.

Projects

COVID19 Detection using X-ray Images

Zyik.ML

Ongoing research project to determine on the basis of Chest X-Rays (PA) whether the person is COVID19 positive or is having Pnuemonia.

(Currently in DL model Development Stage)

Medico - A Dashboard System

Johns Hopkins Center for Bioengineering Innovation & Design (CBID) - Covid19 Virtual Design Challenge

A dashboard system for doctors working in remote/assembled clinics where they can access status & detailed health related information of different patients instantly and follow up with them (especially remote patients who are under quarantine at home) & a Covid19 X-Ray Screening application which will can assist doctors in diagnosis. Also a dedicated self-diagnosing sectionfor COVID19 is present. Meant to act as a bridge between the patients quarantined at home and the doctors in hospitals.

Designed as an entry to Johns Hopkins Center for Bioengineering Innovation & Design (CBID) - Covid19 Virtual Design Challenge.(Detailed proposal available on request, currently only a Prototype)

ACL Tear Detection

Zyik.ML

A CADx system to detect ACL (Anti cruciate ligament) tear in MRI scans. A CNN classifier is built using Alexnet on MRNet dataset released by Stanford ML group. Data augmentation was applied while training to deal with less number of data samples. The AUC achieved was 0.858 on train set and 0.876 on validation set.

Website : https://zyik.ml

(Project live on request as works on paid EC2 instance)

Computer Aided Diagnostic System for Malaria Detection

Zyik.ML

A lightweight Computer Aided Diagnostic System with an aim of easing the weary task of detection of Malaria infected cells by examination of blood smears under microscope using deep learning. A custom lightweight ConvNet is implemented with less than 8 million parameters which comes close to Densenet121 in terms of parameters but shows 10x faster inference time with farless resources on CPU deployment thus eligible for deployment on edge devices. Validation accuracy achieved was 95.6% (Updated Mish Version attained 97.8%).

GitHub Repository

Website: https://malaria.zyik.ml

Research Publications

- MOSQUITO-NET: A deep learning based CADx system for malaria diagnosis, paper selected in ICML 2020 Machine Learning for Global Health Workshop
- (More coming up soon)

Technical Skills

- **Languages :** Python, C, C++, Java
- **Machine Learning Frameworks :** PyTorch, Tensorflow, Scikit-Learn
- **Web Dev Tools :** Flask, Nginx, HTML, CSS
- **IDEs :** Visual Studio Code, Jupyter Lab, Spyder
- **Cloud & DNS Services :** AWS, Azure, GCP, Cloudflare, Freenom
- **Operating Systems :** Windows, Linux (Ubuntu, CentOS, Manjaro)

Courses Undertaken

Deep Learning Specialization (Coursera),
Intro to Deep Learning with PyTorch (Udacity),
Machine Learning (Coursera)

Achievements

- Selected as one of few teams from India for participating in Johns Hopkins Center for Bioengineering Innovation & Design (CBID) - Covid19 Virtual Design Challenge.
- Reviewer for Multimedia Systems, Springer Journal

Strengths and Interests

Strengths : Self Motivated, Flexible, Can adapt to crucial situation, Determined, Teamwork Skills, Good Communication Skills, Always Learning

Interests : Reading Novels, Keeping up with Technologies in General - Mobiles, PCs etc.