SHIVAM CHAUDHARY

Summary

I'm having three years of professional experience both as an independent researcher as well as a professional within the AI Industry. My research interests span across the fields of Computer Vision, Machine Learning, and Artificial Intelligence.

Work Experience

- Machine Learning Engineer - Dürr — July 2021 - Present
- Machine Learning Consultant - Genpact — June 2019 - July 2021

Education

Bachelor Of Technology - Computer Science Engineering — ***CGPA - 8.5/10***

- **Institute:** Jaypee University Anoopshahr (2015 - 2019)
- **Thesis:** Computer-Aided Diagnosis of brain tumors using the concepts of Computer Vision and Machine Learning.

Intermediate-Senior Secondary Examination – Physics, Chemistry, Mathematics

- **Institute:** Maharaja Agrasen Public School, India (2014-2015)

High School Examination - Science — ***CGPA - 9.8/10***

- **Institute:** Maharaja Agrasen Public School, India (2012-2013)

Publications

An enhanced Computer-Aided Diagnosis system based on a fine-tuned deep neural network for brain tumor classification.

- Got selected for publication as well as the presentation at International Conference on Machine Learning and Human-Computer Interaction (MLHMI - 2021) which was held in Singapore in March 2021. Weblink to the conference page: **http://www.mlhmi.org/**.

Computer-Aided Identification and Classification of cancer: A review.

- Published at International Journal of Research in Advent Technology in March 2019. Weblink:**http://www.ijrat.org/downloads/Conference_Proceedings/Special_Issue_March-19/Paper%20ID-152.pdf**.

Performance Evaluation of Linearly Extensible Multiprocessor Network.

- Published at Internation Journal of Trend in Research and Development in November 2017. Weblink: **http://www.ijtrd.com/papers/IJTRD14606.pdf**.

Professional Skills

Machine Learning

- Artificial Neural Networks, Regression Analysis, Classification, LSTM, Recurrent Neural Networks, Natural Language Processing, Data Preprocessing, Hyperparameter Tuning, Deployment over Cloud platforms (Azure).

Image Processing

- Image Enhancement Techniques, Morphological Processing. Features Extraction using HOG, EHD, etc.

Computer Vision/Deep Learning

- Image Classification, Object Detection, and Recognition, Image Segmentation, Single Shot Detection (SSD), You Only Look Once (YOLO) Detection Mechanism, Generative Adversarial Neural Networks (GANs), Convolutional Neural Networks (CNNs), Transfer Learning.

Achievements

- School topper in class X with 93.1% marks. (2012-13)
- Zonal level gold medalist at National Children Science Congress. (2014-15).
- Called for the presentation of the latest research article by the International Conference on Machine Learning and Human-Computer Interaction (MLHMI - 2021) held in Singapore.
- Individually developed and demonstrated the Computer Vision capability while working for Dürr. (2022)
- One of the accomplished projects selected for the Heinz Dürr award for the year 2021 within the category of Innovation and Research.

Certifications

- Introduction to Data Science in Python (Coursera).
- Applied plotting, charting, and data representation in Python (Coursera).
- Applied Machine Learning in Python (Coursera).
- Applied Text Mining in Python (Coursera).
- Applied Social Network Analysis in Python (Coursera).
- Neural Networks using Matlab Programming (Udemy).
- Deep Learning A-Z™: Hands-On Artificial Neural Networks. (Udemy).

Frameworks and Libraries

- NumPy
- Pandas
- Tensorflow
- OpenCV
- NLTK
- Azure
- MATLAB

Programming Languages

- Python
- C++

Contact Details

- **Github:** https://github.com/shivasmic.
- **Contact Number:** +91-7500277169 .
- **Email:** shivasmic07@gmail.com.
- **LinkedIn:** linkedin.com/in/shivam-chaudhary-2601b8183.
- **Address:** 1078, Gulshan Vihar, Khurja-203131, India.

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Projects

Dürr — 2021 - Present

- Individually developed Computer Vision capability at the Organization. This mainly includes the image classification capability, object detection, and recognition capability, and image segmentation capability.
- Demonstrated how Single Shot Detection (SSD) can be used as an effective mechanism to perform object detection and recognition in real-time. Concepts of Transfer Learning were used to develop the application and MobileNet v3 was used as a Convolutional Neural Network to perform the object detection task.
- Developed a use case around the defect detection within the manufacturing environment at Durr and demonstrated the same using the You Only Look Once (YOLO) object detection and recognition framework. The application was able to detect the defect present over the surface of the metal objects manufactured at Durr.
- Developed and deployed the Smart Ticket Management system for the organization that automatically routes the user request tickets to the specific teams according to the category to which they are tagged by the user. These tickets are distributed across 230 odd categories. The application makes use of Natural Language Processing and Deep Learning.
- The Smart Ticket Management application has been nominated for the Heinz Dürr Award for the year 2021-22 within the category of innovation and research. It is a prestigious award that is given every year to the teams within the organization that develop outstanding business solutions for the organization.
- Designed, developed, and deployed a Smart Customer Experience application that is supposed to first predict the category tag for every user feedback out of 28 different categories (Multilabel Classification), and then it also classifies the same review into three different review categories such as Positive, Negative, or Neutral. 88% of accuracy has been achieved over the review prediction module of this project.
- Developed and Deployed the Smart Customer Experience Translation application that performs the translation of reviews that are received by the Customer Experience team from the customers into the English language. The reviews are distributed across 12 different languages.
- Implemented the extension of the Smart Customer Experience project in which the application also performs the translation of the Dürr specific keywords which is also known as custom translation. To perform the custom translation no external API was used, instead, an in-house mechanism was developed to perform this translation and hence saved a huge sum of money for the organization.

Independent Researcher — 2019 - Present

- Acquired the brain tumor dataset from the Tianjin University of China, studied it, and developed a Computer-Aided Diagnosis (CAD) system that would perform an automatic detection as well as classification of the brain tumors into three different categories namely Meningioma, Glioma, and Pituitary Tumor.
- Designed and developed a Deep Neural Classifier to classify the images into three different categories. It was then fine-tuned to improve its classification performance. ReLU activation function was used within the neural layers.
- Feature descriptors such as Histogram of Oriented Gradient (HoG) and Edge Histogram Descriptor (EHD) were used to manually extract the features from the brain MR images dataset.
- A classification accuracy score of 95.73% and an F1 score of .9572 were achieved over the test dataset using the same classifier. Results for the same were selected for publication at the 2nd ACM - International Conference on Machine Learning and Human-Computer Interaction, Singapore – 2021.

Genpact — 2019 - 2021

- Developed and delivered an end-to-end Customer Churn Prediction application using the concepts of Machine Learning for a credit card lending client which predicts if the customer is a credit card defaulter or not based on several attributes associated with the customer.
- Developed a forecasting engine using the concepts of time series analysis to forecast the number of customer inquiries an organization might receive on a particular day. The forecasting engine made use of a deep Recurrent Neural Network (RNN) containing Long Short Term Memory (LSTM) cells to perform the forecasting.