AMEY BHOLE

Data Scientist

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EXPERIENCE

Data Scientist / Software Engineer

Engineering Department, Phyt.Health

Feb 2021 – present Pune, India

- Responsible for creating a data set of detectable exercises by the pose estimation model
- Research and implementation of pose estimation models
- Design and development of MLOps pipeline using Docker, S3, Git actions, and Amazon EC2 for creating a machine learning testing framework
- Test different pose estimation models using machine learning testing framework in Python
- Design and development of REST API services in an Agile/Scrum environment
- Implementation of unit test cases for REST API

Research Intern

Information Systems Lab, University of Groningen

April 2020 – Feb 2021 Groningen, The Netherlands

- Proposed a novel CORF3D feature set based on brain-inspired push-pull CORF model
- Implemented a late-feature fusion based classification method
- Achieved state-of-the-art results for individual identification of Holstein cattle
- Paper accepted for journal **'Expert Systems with Applications'**
- Supervisors: Dr. George Azzopardi, Dr. Owen Falzon and Dr. Sandeep Udmale

Graduate Teaching Assistant

University of Groningen

Sept 2019 – Feb 2020 Groningen, The Netherlands

- Statistics for AI and CS (B.Sc)
- Pattern Recognition (M.Sc)

Research Intern

Information Systems Lab & Intelligent Systems Lab, University of Groningen

May 2018 – Aug 2018 Groningen, The Netherlands

- Developed a novel computer vision system for individual identification of Holstein cattle in farms based on coat patterns
- Supervisors: Prof. Dr. Michael Biehl, Dr. George Azzopardi, and Dr. Owen Falzon

Analytics Trainee

Analytics Department, Sula Vineyards Pvt. Ltd.

Aug 2016 – Mar 2017 Mumbai, India

- Collected, organized and cleaned data for generating monthly and quarterly analysis reports for international and domestic wine brands
- Analyzed and provided insight across a specific business area based on key variances in the reports

EDUCATION

M.Sc. in Computing Science

University of Groningen

Sept 2017 – Sept 2020

CGPA : 7.7/10
Thesis title: Ablation Analysis of Adversarial Defense
Supervision: Dr. George Azzopardi
Specialization: Data Science and System Complexity

B.E. in Computer Engineering

University of Mumbai

Aug 2011 – May 2015 Class: First class

TECHNICAL SKILLS

Python | Matlab | R | C/C++ | Java | Kotlin | Scala | Tableau | SQL | LaTeX | Tensorflow | Keras | Pytorch | Git | Spark | MongoDB | Docker | Linux

COURSES

Introduction to Data Science
Neural Network and Computational Intelligence
Pattern Recognition
Machine Learning
Modelling and Simulation
Information Systems
Scalable Computing
Visual Analytics for Big Data
Software Maintenance and Evolution
Software Architecture

MASTER THESIS

Ablation Analysis of Adversarial Defense

University of Groningen

May 2019 – January 2020

- Performed ablation study to find factors affecting the robustness towards adversarial attacks and noise
- Implemented FGSM, PGD and SPSA attacks to test robustness
- Currently working on a paper submission of the thesis

PUBLICATIONS

Journal

A. Bhole, S. Udmale, O. Falzon, G. Azzopardi, "CORF3D contour maps with application to Holstein cattle recognition from RGB and thermal images", *Accepted/In Press at **Expert Systems With Applications***

Conference Proceedings

A. Bhole, O. Falzon, M. Biehl, G. Azzopardi, "A Computer Vision Pipeline that Uses Thermal and RGB Images for the Recognition of Holstein Cattle", *International Conference on Computer Analysis of Images and Patterns (CAIP)*, pp. 108-119, 2019

V. Shah, S. Udmale, V. Sambhe, **A. Bhole**, "A Deep Hybrid Approach for Hate Speech Analysis", *International Conference on Computer Analysis of Images and Patterns (CAIP)*, pp. pp 424-433, 2021

V. Shah, **A. Bhole**, S. Udmale, V. Sambhe, "A Deep Multi-Kernel Uniform Capsule Approach for Hate Speech Detection" *Accepted/In Press at International Conference on Distributed Computing and Intelligent Technology (ICDCIT 2022)*

Abstract

Bhole, A., Biehl, M., & Azzopardi, G. (2018). Automatic identification of Holstein cattle using non-invasive computer vision approach. Abstract from FAIR Data Science for Green Life Sciences, Wageningen, Netherlands.

PROJECTS

Comparative analysis of individual identification of Holstein cattle

University of Groningen

Nov 2018 – Feb 2019 | Groningen, The Netherlands

- **Goal:** Comparison of CNN models pre-trained on ms-celeb 1million and ImageNet data set for individual identification of Holstein cattle
- Developed four different deep learning models using transfer learning with ResNet50, FaceNet, VGG16 and VGGFace
- Implemented image augmentation and T-SNE for visualization of the data set

Hospital readmission of diabetic patients

University of Groningen

Nov 2017 – Feb 2018 | Groningen, The Netherlands

- **Goal:** Predict hospital readmission of diabetic patients
- Developed different bagging based ensemble models using logistic regression, naive bayes, random forest, k-nearest neighbours and extreme gradient boosting for prediction of hospital readmission
- Performed data description and pre-processing to extract useful information

RESEARCH INTEREST

Data Science | Brain-inspired algorithms | Machine Learning | Computer Vision | Adversarial Machine Learning

CERTIFICATIONS

Mathematics for Machine Learning Specialization

Coursera

Present

Deep Learning Specialization

Coursera

May 2020

Applied Multivariate Statistical Modelling

IIT Kharagpur

April 2016

Introduction to Data Analytics

IIT Madras

October 2015

Machine Learning

Coursera

December 2015

LANGUAGES

English ●●●●●

Hindi ●●●●●

Marathi ●●●●●

REFERENCES

Prof. Dr. Michael Biehl
Professor (Adjunct Hoogleraar)
University of Groningen
m.biehl@rug.nl

Dr. George Azzopardi
Assistant Professor (Tenure Track)
University of Groningen
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Vikram Patil
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Phyt.Health
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