



# Nithesh Chandher Karthikeyan

Research Engineer for the Wallenberg  
Research Arena for Media and Language

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To learn, grow and excel in the field of Artificial Intelligence and Machine Learning

## WORK EXPERIENCE

### Research Engineer Umeå University

07/2021 - Present

Umeå, Sweden

#### Achievements/Tasks

- Design, implement and maintain the machine learning platform for WARA Media and Language (WARA ML) arena under the guidance and supervision of Prof Johanna Björklund and the WARA ML operational team.
- Develop the machine learning platform on top of the OpenStack cloud infrastructure hosted by WARA Common, a sister research arena within Wallenberg AI, Autonomous Systems and Software Program (WASP).
- The work also includes collection and provisioning of data, communication with partners from both academy and industry regarding the development of platform and arena requirements, benchmarking, and facilitating users.
- Assisting with the annotation service for the SLAM dataset from Ericsson and working with the implementation of GENE (Generation and Evaluation of Non-verbal Behaviour for Embodied Agents) challenge in the field of animation and motion generation with the main focus on speech-driven gesture synthesis.

Guide: Prof. Johanna Björklund - johanna@cs.umu.se

### Master Thesis & Research Intern Uppsala University InfoLab

09/2020 - 06/2021

Uppsala, Sweden

Research Laboratory

#### Achievements/Tasks

- Master thesis project on the Analysis of visual political communication on YouTube, as a part of the project on Machine Learning and political communication.
- Develop deep learning methods using transfer learning for the analysis of image-based online communication, under the supervision of Prof Matteo Magnani, the Director of Uppsala University InfoLab, and Prof Alexandra Segerberg from the Department of Government.
- Develop a custom image classifier to detect object based labels related to climate change using transfer learning.
- Perform information extraction from video frames using the state of the art models like Google's Vision API, Tesseract-OCR, and IBM Watson
- Establish a benchmark model by comparing the results with the state-of-the-art models.
- Automate classification of video frames taken from YouTube videos about climate change using the benchmark model.

Guide: Prof. Matteo Magnani - matteo.magnani@it.uu.se

### Graduate Teaching Assistant Uppsala University

09/2020 - 03/2021

Uppsala, Sweden

#### Achievements/Tasks

- Support IT and Engineering students for the Data Mining course during Autumn 2020 and Spring 2021.
- Provide assistance to students in executing different Data mining concepts (Data preprocessing, Classification, Clustering, and Association Rule Mining) using the RapidMiner tool.
- Monitor project teams and help them with their progress.
- Report a short summary to the professor regarding the major obstacles faced by the students during the project.
- Review project reports and provide suggestions.

Guide: Prof. Matteo Magnani - matteo.magnani@it.uu.se

### Machine Learning Intern Screel Labs

10/2020 - 12/2020

Chennai, India

Software Development Company

#### Achievements/Tasks

- Developed a method to extract information from Hand Written Renal profile using Google Vision API. Image segmentation techniques were used to partition the renal profile table into different segments and Vision API was used to detect the handwritten text in those segments.
- Proposed a solution to assist doctors to convert renal profiles to digital records using Image recognition methods.

Guide: Mrs. Anitha Manoharan - screellabs@gmail.com

## EDUCATION

### Masters in Computer Science

Uppsala University

08/2019 - 06/2021

Uppsala, Sweden

#### Courses

- Natural Computation for Machine Learning
- Statistical Machine Learning
- Artificial Intelligence
- Data Mining
- Large Datasets for Scientific Application
- Intelligent Interactive Systems

### Bachelor of Technology in Computer Science and Engineering

Vellore Institute of Technology

07/2015 - 05/2019

Vellore, India, CGPA: 8.19/10

#### Courses

- Artificial Intelligence
- Machine Learning
- Internet of Things
- Calculus
- Statistics

## TECHNICAL SKILLS

AI, ML, Data Science



Python, NumPy, Pandas,  
Sklearn, OpenCV



C, C++



Java, Kotlin, R



Computer Vision



TensorFlow, Keras, Pytorch



Android Development



SQL



## ADDITIONAL SKILLS

OpenStack

Jupyter Notebook

RapidMiner Studio

Weka

Orange

IBM SPSS Software

IBM Watson Studio

Android Studio

IntelliJ

VisionAPI

Tableau

## PROJECTS

### Decentralized Air Quality Monitoring and Prediction

- 30 credits project course from Ericsson.
- Developed a solution to predict the concentration of air pollutants (especially PM10) in the city of Stockholm using the Horizontal Federated Machine Learning approach.
- Established the benchmark model by comparing the performance of Federated Learning model and the Centralized model.
- Developed an Android application to display the prediction results and also the work were dockerized to reproduce the results of the model.

### Hand Gesture Recognition using Furhat Robot

- Detecting different hand gestures using Deep Learning and create responsive behavior from Furhat Robot for each hand gesture.
- Developed a model to detect the annotations in the videos and predict the gestures based on the annotations using DNN.
- An end-to-end interaction was established using FurhatSDK.

### Driver Drowsiness Detection using Deep Learning

- Developed a CNN model which monitors whether the eyes of the user are open or close.
- Designed an alert system to notify the user when his/her eyes are closed for a prolonged period.

### Song Classifier using Spotify playlist data

- The mini project aims to classify 200 songs based on whether the person likes them or not with 750 training samples and 13 high level features.
- Established the best performing model by evaluating the performance of different statistical and machine learning models (Logistic Regression, LDA, QDA, k-NN, Boosting and Neural Networks).

### RFID Based Library Book Locating and Management System

- Designed a RFID based library book locating and management system using a raspberry pi micro- controller.

## PUBLICATIONS

*International Journal of Recent Technology and Engineering (IJRTE)*

**Intelligent Framework for Public Transport Bus Services system**

*Author(s)*

Nithesh Chandher Karthikeyan, Aswath Ananthasamy, Yokesh Babu Sundaresan

*Volume-8 Issue-2S4, July 2019*

## PERSONAL COURSES

Introduction to Data Science Specialization

*Coursera - IBM*

— Credential ID: 2XTRKNJZAL77

Python for Data Science and AI

*Coursera - IBM*

— Credential ID: D7B6G2H52GT4

Neural Networks and Deep Learning

*Coursera - DeepLearning.ai*

— Credential ID: KFUZNJNFWBKM

Databases and SQL for Data Science

*Coursera - IBM*

— Credential ID: ZVSKH6BZPVRN

Machine Learning Foundations: A Case Study Approach

*Coursera - University of Washington*

— Credential ID: 8XTL4XBQUTXL

Convolutional Neural Networks

*Coursera- DeepLearning.ai*

— Credential ID: E22VR5FMEKHB

## EXTRA CURRICULUM

Certificate of Social Service

*Certificate of social service from HelpAge India for creating awarness and assisting in raising funds for the care of the elderly people*

Hack4cause

*Bronze Echelon certificate for participating in Hack4Cause conducted by IEEE - SSIT (Students Chapter) in VIT University*

Certificate of Training in Life Skills

*Completed Life Skills Training Programme conducted by Sadhana HR Solutions*

First level of Active Mechanics

*Completed a six months hobby course on robotics conducted by Silicon World*

## LANGUAGES

English

*Professional Working Proficiency*

Swedish

*Elementary Proficiency*

Tamil

*Native or Bilingual Proficiency*

## INTERESTS

Football

Formula One

Indian Classical Music

Cricket

Gaming

League of Legends

FIFA 21

## VOLUNTEER EXPERIENCE



**Student Coordinator**

GraVITas 2017

*07/2017 - 09/2017*

*Registration and Reception Committee*

*Vellore, India*

*Tasks/Achievements*

- Student coordinator of Registration and Reception committee for GraVITas 2017- an International Science Carnival held at Vellore Institute of Technology
- As a student coordinator, I was responsible for making the students to register for the events and to accommodate students coming from other Universities for GraVITas

## REFERENCES

Prof. Matteo Magnani, Docent (Associate Professor) in Computer Science at Uppsala University, Director of Uppsala University InfoLab

*Guide: [matteo.magnani@it.uu.se](mailto:matteo.magnani@it.uu.se)*

Mr. Stefan Neumann, Lecturer at Department of Information Technology, Uppsala University

*Guide: [stefan.neumann@it.uu.se](mailto:stefan.neumann@it.uu.se)*