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## ACADEMICS

### 2017-2018 MSc Computer Science – Data Science (70%)

*Trinity College, Dublin*

*Modules:* Data Analytics, Data Visualization, Machine Learning, Optimization Algorithms for Data Analytics, Text Analytics, Scalable Computing, Security and Privacy and Applied Statistical Modelling

### 2010-2014 Bachelor of Technology – Computer Science and Engineering (82.75%)

*Government Model Engineering College, Cochin (CUSAT), India*

*Modules:* Object Oriented Programming, Software Engineering, Operating Systems, Artificial Intelligence, Distributed Computing, Database Management Systems

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## WORK EXPERIENCE

Mastercard, Dublin	Post: Software Engineer II	Jan 5, 2021 – Present
<ul style="list-style-type: none"> <li>As a full stack engineer, developed features and completed technical spikes for a web-based payment control tool that facilitates B2B payments for mid and large size corporations. Used Java, Spring, Maven, OracleDB.</li> <li>Managed critical customer escalations by providing timely support and resolved internally raised defects.</li> <li>Acted as a buddy for new joiners in the team.</li> <li>Recently, worked on upgradation of Log4j libraries to resolve the recently discovered Log4Shell vulnerability.</li> </ul>		
Citi Europe PLC, Dublin	Post: Technology Analyst	Sep 3, 2018 – Dec12, 2020
<ul style="list-style-type: none"> <li>Worked on Issuer Technology team on feature development for new project that is to rebuild the legacy system which maintains entire lifecycle of a security. Tech stack used was Java, Spring boot, Angular, OracleDB, IBM MQ.</li> <li>Developed a Web application for Citi's payment hub, for tracking and analyzing the payments going through it, thus streamlining the work of the testing and support teams using Service Oriented Architecture (SOA). Development stack used was Java, Spring boot, Angular, Apache Kafka, IBM MQ, MongoDB</li> <li>Mentored a new intern and mentored a team in Citi's Upstart program, which made it to the finals in Belfast. Upstart is a student entrepreneurship program, to solve problems of social importance.</li> </ul>		
SAP Labs, India	Post: Developer Associate	Jul 20, 2015 – Aug 31, 2017
<ul style="list-style-type: none"> <li>Technical expert of Business configuration in Finance module of Business ByDesign (ByD) cloud ERP software.</li> <li>Developed and maintained Business configuration submodule of ByD Finance module, through 8 releases.</li> <li>Led the development of ByD tax and tax returns modules according to yearly German e-Bilanz taxonomy releases.</li> </ul>		
Unisys, India	Post: Consultant 4	Sep 1, 2014 – Jul 13, 2015
<ul style="list-style-type: none"> <li>Developed the backend of Landelijk Intake Portal, for Netherland's Mijnaansluiting.nl foundation.</li> <li>Used ASP.NET, C# and MS SQL server with a HTML, CSS, JS stack on SharePoint platform for the portal.</li> </ul>		

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## RESEARCH EXPERIENCE

### MSc Dissertation on using Bayesian nonparametric mixture models for clustering of 'Dublin Bikes' bike stations

- Analyzed JCDecaux's data and clustered the bike stations using Bayesian non-parametric mixture models.
- Dirichlet Process Mixture Model of Gaussians (DPM-G) was used after Fourier Basis smoothing to detect groups of similar stations, which would help the service provider to implement group-targeted strategies.
- Exploratory Data Analysis and model building was done in R, after data preparation in Python. An AWS EC2 instance running Ubuntu was used for automated data collection using Python at scheduled intervals.

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## PROJECTS

### Personal Website – meenutresa.github.io

August 2019

Developed a website on Bootstrap framework to showcase my skills and experience. Hosted the site on Github pages.

### Spring Boot Application to notify of best Forex rates (Hobby Project)

July 2019

Developed an application with Microservices architecture that polls the forex conversion rates for a given currency pair and sends email alerts to the user, if the rate is above a Threshold value.

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### Analysis of Yelp dataset on Restaurant reviews

April 2018

Built a Hierarchical model for comparing the restaurant ratings of different neighborhoods. As a second phase, used MCMC regressor to build a linear regression model using Gibbs sampling to predict the restaurant ratings. In the third phase, Latent Class Analysis (LCA) was used for identifying the association between neighborhoods and restaurant categories. The implementation was done in R.

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### Adaptive Mood based Music Player – Go with The Times

April 2018

A music player which adapts its playlist automatically according to the user's mood. Implemented using Django python framework with PostgreSQL DB. The player comprises of two engines – Mood Inference Engine and Song Matching Engine to play the music according to the mood of the user.

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### Analysis of the EU fishing fleet data

December 2017

Analysis of EU fishing fleet data provided by EU Scientific, Technical and Economic Committee for Fisheries (STECF). The aim was to build a regression model besides ensemble models (RandomForests, XGBoost) to estimate net profit/loss for each fishing vessel. The models were later evaluated and compared using RMSE and  $R^2$  metrics.

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### Analysis of Cyclomatic Complexity

December 2017

Implemented a system to estimate the cyclomatic complexity of a Github repository with a master-slave work-stealing architecture using RESTful webservices in Python.

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### Performance comparison of Machine Learning frameworks

October 2017

Analyzed the performance of three ML Frameworks - Scikit Learn, TensorFlow and Apache Spark MLlib, on each of the three algorithms - Linear Regression, Multilayer Perceptrons and RandomForests. Metrics like RMSE, Accuracy and  $R^2$  were used to evaluate the performance of these frameworks, on the same data.

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### Image Description Generator

April 2014

Recognized objects in images and generated simple image descriptions, to create text-based indexes for image retrieval. Support Vector Machine (SVM) in Scikit-Learn is used for building the model. Histogram of Oriented Gradients (HOG) was used for feature extraction. Prenominal Modifier Ordering Model was used for the formation of sentences in English which is displayed on the UI created using Tkinter.

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## SKILLS

- **Technical Skills:** Software Development, Java, Spring Boot, Spring Cloud, Angular, Apache Kafka, IBM MQ, MongoDB, Python, R, Numpy, Pandas, Scikit-learn, Apache Spark MLlib, C, C++, C#, ASP.NET, ABAP, RESTful Web Services, Microservices, TensorFlow, CSS, HTML, MySQL, Excel VBA, Android Studio, JavaScript, D3.JS
- **Areas of Interest:** Machine Learning, Data Analytics, Statistical Modelling, Optimization Algorithms, Web & App Development, Data Structures, Data Visualization.

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## ACHIEVEMENTS

- **Won First place in Citi TTS hackathon 2018**, for creating a **Python ML application** that classifies handwritten and typewritten text using a **Convolutional Neural Network** and Contour based Image Segmentation.
- **Won First place in Google TensorFlow challenge** held by **SAP Leonardo/ IoT Innovation Hub** at SAP Labs India.
- **Won second place** in a Case study on Talent retention within SAP Labs India.

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## INTERESTS AND ACTIVITIES

- Worked as a Part-time exam invigilator at Trinity College.
- Developed a training curriculum on Cloud computing and its Elasticity, for SAP employees. The curriculum was developed with reference to AWS infrastructure and SAP HANA.
- Developed an android app aimed at helping people to not lose touch with their acquaintances and sends reminders on failing to keep in touch with them on a regular basis. Used Java, Android SDK and Eclipse with ADT plugin for this project.
- Developed an e-commerce website using C#, ASP.NET, MS SQL Server, HTML and CSS.
- Participated in **Accenture Solves Trinity**, a competition for solving a global issue using innovation and technology, conducted by Accenture Ireland.