

# Dr. Sreedevi Varma N

APPLIED SCIENTIST II | SENIOR DATA SCIENTIST

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## Summary

Data Scientist with more than 1 year of experience in banking sector. I have owned and managed multiple products during this period including multiple end-to-end model deployments. I am also a Physics PhD graduate with inter-disciplinary academic research experience in Deep Learning, Particle Physics and Cosmology. I have a background in data generation and preprocessing coupled with strong experience in building, training and evaluation of deep learning models like DNNs, CNNs and RNNs. I am a machine learning enthusiast with keen interest in development of models to tackle real world business problems.

## Skills

### Programming Language proficiency

PYTHON

### Libraries used

TENSORFLOW 2.0, TENSORFLOW 1.14, KERAS, SCIKIT-LEARN, MATPLOTLIB, MULTIPROCESSING, PANDAS, JOBLIB, NUMPY, SCIPY, AMPLITUDE, METABASE, SPINNAKER

### Models Built

CNN, LSTM, REGRESSION AND RASA CONVERSATIONAL MODEL

## Experience

### Applied Scientist II

JUPITER MONEY

Bangalore/Remote, IN

January 2023- Present

- Managing the science side of the project
- Currently working on the science side of creating a *Conversational Search* tab for the customers, which has a huge impact on customer experience

### Applied Scientist I

JUPITER MONEY

Bangalore/Remote, IN

October 2021- December 2022

- Explored multiple data sources and did extensive analysis for finding the affinity towards different financial institutions.
- Conducted research and built algorithms/models for the business problems of interest.
- Owned/Contributed to the following projects:
  - Normalisation of raw merchant names in the transactional data, which impacted the user experience
  - End-to-end management on the data science front of the FAQ pipeline, a biweekly iteration which included all the information of the product.
  - Conversational bot to fetch appropriate FAQs to the customer.
  - Insights from transactional SMS of the customers to create new products/features.
  - End-to-end management of a conversational bot with intents like, greet, FAQ, gibberish, out-of-scope, and human-handoff.
  - Currently working on the science side of creating a *Conversational Search* tab for the customers, which has a huge impact on customer experience

### PhD Researcher

KING'S COLLEGE LONDON

London, UK

October 2016- July 2021

- Generated and preprocessed Particle Physics and Cosmological data. Parallelised the data generation process to make it more efficient using python libraries.
- Built and implemented various Convolutional Neural Network (CNN) and Recurrent Neural Network (RNN) architectures in studying the underlying physics from the simulated data.
- Trained and evaluated the machine learning models using Tensorflow and Keras. Fine-tuned the models by optimizing various hyperparameters.
- Published results in internationally renowned journals and presented my work at various international physics conferences to world leading experts in the field.

## Education

### King's College London

PHD IN PHYSICS

London, UK

October 2016 – July 2021

- Deep Learning Applications to Jet Tagging and Subhalo hunts.

## National Institute of Technology Karnataka (NITK)

MASTER OF SCIENCE (MSc) IN PHYSICS

- GPA: 8.59/10

Surathkal, Karnataka, India

July 2014 – June 2016

## Maharaja's College Ernakulam, Mahathma Gandhi University

BACHELOR OF SCIENCE (BSc) IN PHYSICS

- Mathematics and Statistics as complementary.
- GPA: 3.62/4

Ernakulam, Kerala, India

July 2011 – May 2014

## Publications

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### Deep Learning Applications to Jet Tagging and Subhalo hunts.

SREEDEVI VARMA

PhD Thesis

2021

### Sensing Higgs boson cascade decays through memory.

CHRISTOPH ENGLERT, MALCOLM FAIRBAIRN, MICHAEL SPANNOVSKY, PANAGIOTIS STYLIANOU, AND SREEDEVI VARMA

Phys. Rev. D 102, 095027

2020

### Dark Matter Subhalos, Strong Lensing and Machine Learning.

SREEDEVI VARMA, MALCOLM FAIRBAIRN, AND JULIO FIGUEROA

arXiv 2005.05353

2020

### The Machine Learning Landscape of Top Taggers.

ANJA BUTTER ET AL.

SciPost Phys., 7:014

2019

### Reports of My Demise Are Greatly Exaggerated:N-subjettiness Taggers Take On Jet Images.

LIAM MOORE, KARL NORDSTRÖM, SREEDEVI VARMA AND MALCOLM FAIRBAIRN

SciPost Phys., 7(3):036

2019

## Projects

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### Dark Matter signal search.

CONFERENCE KAGGLE COMPETITION

- Built a classifier to identify dark matter signal.

Kaggle

July 2017

### Alcubierre's Drive: A study using ADM formalism and Energy Conditions

MASTER'S THESIS

- Study on warp drive or hyper-fast travel within the framework of General Relativity.

National Institute of Technology  
Karnataka (NITK)

July 2015 – May 2016

### Simulating Random walk using Python

MINI-PROJECT

- Simulation of Random walk and its application to problems like Brownian motion.

National Institute of Technology  
Karnataka (NITK)

December 2015 – May 2016

### A Pseudo-Newtonian approach to Bondi accretion flow across static black holes

SUMMER INTERNSHIP

- Study of Bondi flow in to a static blackhole.

Indian Institute of Science (IISc)

May 2015 – July 2015

### A Study on Comet ISON's Orbit

UNDERGRADUATE THESIS


- Study on position of the Comet ISON or C/2012 S1.

Maharaja's College Ernakulam

June 2013 – December 2013

## Conferences

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Sept 2019	<b>PALS 2019</b> , <u>Speaker</u> : Paris-Amsterdam-London-Stockholm 9th meeting	<i>LPTHE, Paris</i>
Jan 2019	<b>YETI 2019</b> , <u>Speaker</u> : Young Experimentalists & Theorists Institute Conference	<i>IPPP, Durham</i>
July 2018	<b>BOOST 2018</b> , 10th International Workshop on Boosted Object Phenomenology, Reconstruction and Searches in HEP	<i>LPTHE, Paris</i>
July 2019	<b>IML 2018</b> , <u>Speaker</u> : Machine Learning Workshop 	<i>CERN, Geneva</i>
Sept 2017	$\Delta$ <b>CDM and Beyond</b> , Cosmology Tools in Theory and in Practice	<i>Corfu, Greece</i>
Aug 2017	<b>BUSSTEPP</b> , British Universities Summer School in Theoretical Elementary Particle Physics	<i>London, UK</i>
July 2017	<b>MLHEP</b> , Machine Learning for High Energy Physics	<i>Reading, UK</i>
Jan 2017	<b>YETI/ YTF</b> , Young Experimentalists & Theorists Institute Conference	<i>IPPP, Durham</i>