Shanmugha Balan

M.Sc. Physics and B.E. Electrical and Electronics Engineering
Birla Institute of Science and Technology, Pilani - 8.0/10.0

Passionate about Astronomy and Machine Learning. Avid blogger, loves to teach and share knowledge!

⚲ sbalan7.github.io   in sbalan7   ⚲ sbalan7   @ sbsboa001@gmail.com   ☎ +91 77340 18009

SKILLS

Machine Learning
TensorFlow, PyTorch, Scikit-Learn

Data Science
Numpy, Pandas, Matplotlib

Scientific Computing
C/C++, MATLAB, Python (Anaconda)

COURSES

University Courses (Math)
Math 1 (Calculus) | Math 2 (Linear Algebra+Complex Analysis) | Math 3 (Differential Equations) | Probability and Statistics

University Courses (Physics)
Classical Mechanics | Electromagnetic Theory | Optics | Quantum Mechanics | Nonlinear Dynamics and Chaos

MOOCs (Certified)
Deep Learning Specialization (5 courses, deeplearning.ai) | Applied Data Science Specialization (5 courses, U Mich) | TensorFlow in Practice (4 courses, deeplearning.ai)

MOOCs (Audited)
Intro to DL (MIT OCW) | CNNs for Visual Recognition and NLP for DL (Stanford Online) | Deep Reinforcement Learning (UC Berkeley)

EXPERIENCE

Undergraduate Research Scholar

🏢 Astrophysics and Cosmology Research Group, Dept of Physics   📅 Dec 2020 – present   ♦ BITS Pilani, Rajasthan

- Working on star cluster data from the Gaia Mission by the European Space Agency
- Studied structural properties and stability of clusters using unsupervised learning algorithms

Machine Learning Intern

🏢 Army Base Workshop   📅 May – Jul 2021   ♦ Pitharogarh, Uttarakhand

- Hi me from the future, fill in this stuff, please
- DONT SEND THIS ANYWHERE BEFORE FILLING IT MAN

Junior Research Scholar

🏢 Raman Lab, Computational Systems Biology Lab   📅 Apr – Jun 2018   ♦ IIT Madras, Chennai

- Analysed protein networks for *E. coli* using data from the STRING database
- Made a protein network graph with NetworkX to identify potential drug targets

PERSONAL PROJECTS

SEU Detection for CASSIOPE
Trained a random forest model to predict solar disruptions to protect the CASSIOPE satellite

Traffic Sign Classifier
Trained a custom CNN on the German Traffic Sign Benchmark and made a GUI to deploy the model

EXTRA CURRICULAR ACTIVITIES

Microsoft Learn Student Ambassador
Conduct paper discussions and work on ML projects

The Radio Astronomy Club
Manage the blog and perform data analysis of GW signals

FreeLunch
Senior Editor of a research oriented blog

Physics Association
Conduct talk series and game shows to promote physics