# Kersagar Ranjit Kumar

## Personal Data


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## Work Experience

Aug 2021 – Feb 2019 | Cyient-Insights
Data Scientist

- Lidar 3D point cloud alignment and Wear Analytics : Mill Liner Wear Analytics project for Mining company from Australia, to estimate wear using *3D LiDAR* data. We implemented Machine Learning algorithms to develop models that align with the scan with the reference CAD and determine the maximum wear profile. We achieved an alignment error within a **5 mm** range which is very less when we compared to the mill dimension length which exceeds **15** metres.
- Data engineering and anomaly detection : Worked on a data engineering project with renowned construction company in Japan, which involved data mining on time series data using Recurrent neural networks. Programmed in python to do data cleansing and anomaly detection. Removed Unwanted observations, Handle Missing Data and Fix structural errors in data.
- Anomaly detection for a transportation client : Working on a project with Rail company in the UK to automatically detect the anomalies in sensor data collected from rail bogies. We used python as a programming language to implement statistical models to detect the failures in advance and thereby ensuring ease of operation and reducing maintenance costs.

*Jan 2019* – Aug 2018 | Cummins Turbo Technology
*Thermal and Fluid Science Engineer*

- Using **Machine Learning** predicting the performance of a Turbocharger at altitudes : The performance of the Turbocharger is predicted at different altitudes using **Machine Learning**. Multivariate Linear regression is used for the predictions. Ridge regression, Lasso regression and Adam Optimizer is used for the optimization. Code is written in **Python** Programming Language.

## Teaching Assistant

Apr 2017 – Jan 2017 | DATA ANALYSIS AND INTERPRETATION
Instructor: Prof. Prabhu Ramachandran (IIT Bombay)

- Assisted professor in conducting quizzes, checking assignments for 64 students and oversaw the semester examination

Dec 2016 – Jul 2016 | AERODYNAMICS
Instructor : Prof. Vineth Nair (IIT Bombay)

- Conducted tutorial sessions for a batch of 64 students to aid their understanding of various concepts of aerodynamics and helped the professor in continuous assessment by conducting quizzes.

## Certificates

Jun 2020 | edx.org
Massachusetts in institute of technology, Boston
**Machine Learning with Python-From Linear Models to Deep Learning**
certificate link

## Education

Aug 2021 | Master of Science in Statistics
**The University of Georgia, Athens**

Jul 2018 | Master of Technology in Aerospace Engineering
**Indian Institute of Technology Bombay** | Major: Aerodynamics
CPI: 8.39/10

GATE All India Rank: 75 in Aerospace Engineering.

Jul 2014 | Bachelor of Technology in Aeronautical Engineering
**MLR institute of Technology**, Hyderabad.

## Technical Skills

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|---|---|
| Programming Language : | Python, scikit-learn, OpenCV, Spark, Tensorflow, Pytorch, R |
| Simulation : | NUMECA, MULTALL, ANSYS(CFX,FLUENT). |
| Productivity Applications : | MS Word, MS Excel, MS Access, MS Project |
| Operating Systems : | Windows Vista/NT/XP/98/95, Windows 2003/2000 Server, UNIX. |
| Other Software/Tools: | Tableau, Deep Learning, Machine Learning |

## M. Tech Thesis

Jul 2018
May 2017 | Design and Analysis of Mixed Flow Compressor
Advisor: Prof. A. M. Pradeep

- **Objective** : Designing a high speed and high loading mixed flow compressor under given operating conditions and assess its performance at off-design conditions.
- **Methodology** : Computational analysis using 3D-RANS (with MULTALL) and experimental data validation from industrial collaborator. Implemented **Genetic Algorithm** to optimize the Pressure ratio and efficiency of a Mixed flow compressor and able to improve the isentropic efficiency by more than 10% compared to original design developed by GTRE (Public Sector Unit under Government of India).
- **Validating** the design created using the MULTALL code against a 3D viscous CFD solution obtained from ANSYS CFX and Industrial data.
- **Results** : Improved the efficiency of the design by **10**% and the pressure ratio by **30**%.
- **Softwares used** : MULTALL, ANSYS(CFX), Python, NUMECA.

## Positions of Responsibility

**Jul 2018 – Sept 2017** | Associate General Secretary, Department of Aerospace Engineering

- Member of a team of 13 elected and nominated council members aiming at increasing the interaction among students and faculty members to promote student's interests in the field of Aerospace engineering.

**Dec 2016** | Coordinator, Robowars, TECHFEST

- Coordinated with a team of 20 for smooth proceeding of ROBOWARS, one of the biggest events in Techfest. Took part in coordinating with 64 participating teams for scheduling of matches.

**Dec 2016** | Hospitality and Public Relations Coordinator, MOOD INDIGO

- Successfully conducted the Asia's largest college cultural festival and led a team of over 10 organizers. Handled Hospitality requirements and essentials of 50+ colleges during the 4 days of the festival.