

## **Individual Learning Plan**

I'm Sudarshan Ethirajah, coming from a Robotics/Mechatronics background. My previous projects involved using drones for water quality monitoring and applying machine learning for water quality analysis. Currently, I'm pursuing a Master's in Environmental Sciences, specializing in Environmental System Analysis at WUR. My curiosity lies in merging AI or Machine Learning with environmental analysis, which motivated me to choose this course. Despite having previous machine learning experience, I'm eager to acquire skills in extracting meaningful patterns in data and presenting them effectively through data visualization techniques in Python. As I plan my master's thesis, where I hope to use machine learning to tackle an environmental issue, I see this course as a valuable step in preparing for that research.

### **Learning goal 1:**

To get familiar with one of the Python notebooks i.e., Jupyter Notebook. Currently, I only know the types of data frames. At the end of the course, I want to learn to work with the Jupyter Notebook. Therefore I will produce a working Python Jupyter Notebook that showcases the data cleaning and data wrangling.

### **Learning goal 2:**

To be able to use appropriate data visualization techniques for complex environmental data. For that, I will be getting familiar with the Matplotlib or Seaborn library for visualizing our project analysis. My objective is to become familiar with the Matplotlib or Seaborn library and learn how to present information in a way that the general audience can understand.

### **Learning goal 3:**

I aim to learn Machine Learning in Python for our project's Predictive Analysis, following our group discussion. To achieve this, I'll be exploring the Catboost and LighGBM packages in the Python library. My objective is to become proficient in using this machine learning tool and to be able to perform Predictive Analysis. By the end, I plan to submit a Python notebook along with my individual portfolio, showcasing practical applications of the machine learning package in our analysis.

### **Learning goal 4:**

I aim to explore the ethical aspects of data and algorithms in data science research, focusing on the considerations needed to address ethical challenges in using big data. My goal is to understand and apply these ethics in my analysis. I will reflect on the social and ethical considerations made, in Assignment 1 and incorporate them as a dedicated section in my group report.

### **Learning goal 5:**

I aim to improve my skills in presenting information on complex data in an easily visualized format. For that, I will be getting familiar with ArcGIS for visualizing our project analysis. By the end, I plan to submit an ArcGIS toolbox and layouts along with the documentation of steps, showcasing the use of ArcGIS in our analysis.

I've previously aimed for and achieved boundary-crossing competencies in my past courses, so I haven't included it as a learning goal here. In summary, the learning goals mentioned above not only contribute to the group project but also align with the overall learning outcomes of the course.