

**Title :** Rainfall Prediction using Machine Learning Models from Meteorological Data

<b>Author(s) :</b>	1. Krittiya Sunahu	<b>Student ID :</b> 640510692
	2. Chanyaphas Chaikongcha	<b>Student ID :</b> 640510697
	3. Suphawan Srimakorn	<b>Student ID :</b> 640510707
	4. Kunnaree Wongsa	<b>Student ID :</b> 640510712
	5. Thitikarn Techa	<b>Student ID :</b> 640510718

**Major :** Data Science

**Advisor(s) :**

1. Associate Professor Dr. Thaned Rojsiraphisal
2. Assistant Professor Dr. Nawinda Chutsagulprom

**Type of presentation\* (choose 1) :**

**Oral Presentation** (เฉพาะ ตัวแทนศ.ที่สาขาเลือกให้นำเสนอแบบบรรยาย)

**Poster** (กรณี นำเสนอผลงานปัญหาพิเศษ/การค้นคว้าอิสระ)

**Cooperative Education** (กรณี นำเสนอผลงานสหกิจศึกษา)

## ABSTRACT

*Rainfall prediction plays a crucial role in water management and agricultural planning in Northeastern Thailand, a region influenced by various climatic factors. This study aims to develop rainfall prediction models using machine learning techniques and compare the performance of different models, namely XGBoost, long short-term memory (LSTM), and transformer. The meteorological data used include rainfall, temperature, relative humidity, wind direction, and wind speed from 1993 to 2018 obtained from Thailand Meteorological Department. The evaluation metrics for model performance include mean squared error (MSE), mean absolute error (MAE), and R-squared score. Under specific parameter settings, the experimental findings showed that the LSTM model outperformed the other two models, whereas the transformer approach yielded unsatisfactory results. It is widely recognized that hyperparameter tuning significantly impacts analysis performance, often in a detrimental way. Future work could explore optimization techniques to determine optimal hyperparameters.*

\*Type of presentation must be matched with an option you choosing on student upload system.

\*\*The abstract can be more than one page and must be approved by project advisor before upload.