Research Methods in computer science
Spring 2018

Lecture 11

Omprakash Gnawali
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Agenda

HW5 Live Grading
Conference Updates
Metrics and Experiments [contd]
HW6
Conference Updates
Metrics from Classification Research

Classification Accuracy
Logarithmic Loss
Area Under ROC Curve
Confusion Matrix
Classification Report
Precision
Recall
F1-Score

Partly from https://machinelearningmastery.com/metrics-evaluate-machine-learning-algorithms-python/
Metrics from Regression Research

Mean Absolute Error
Mean Squared Error
$R^2$

Partly from https://machinelearningmastery.com/metrics-evaluate-machine-learning-algorithms-python/
Metrics from Systems Research

Reliability
Latency
Coverage
Energy
Group Activity

Experiment Design
Metric Selection
Experiments

What experiments are useful?
Critical for the main arguments of the paper

What experiments are not useful?
Pointless experiments that generate pointless numbers, graphs, and tables
Types of Experiments

From the “context” perspective

Controlled

Uncontrolled

There are other perspectives to be covered in future lectures
A new algorithm that translates English text to Spanish.
A new wireless networking technology.
A new algorithm that can identify the person in an image.
HW6

Useful and not useful experiments in CS papers