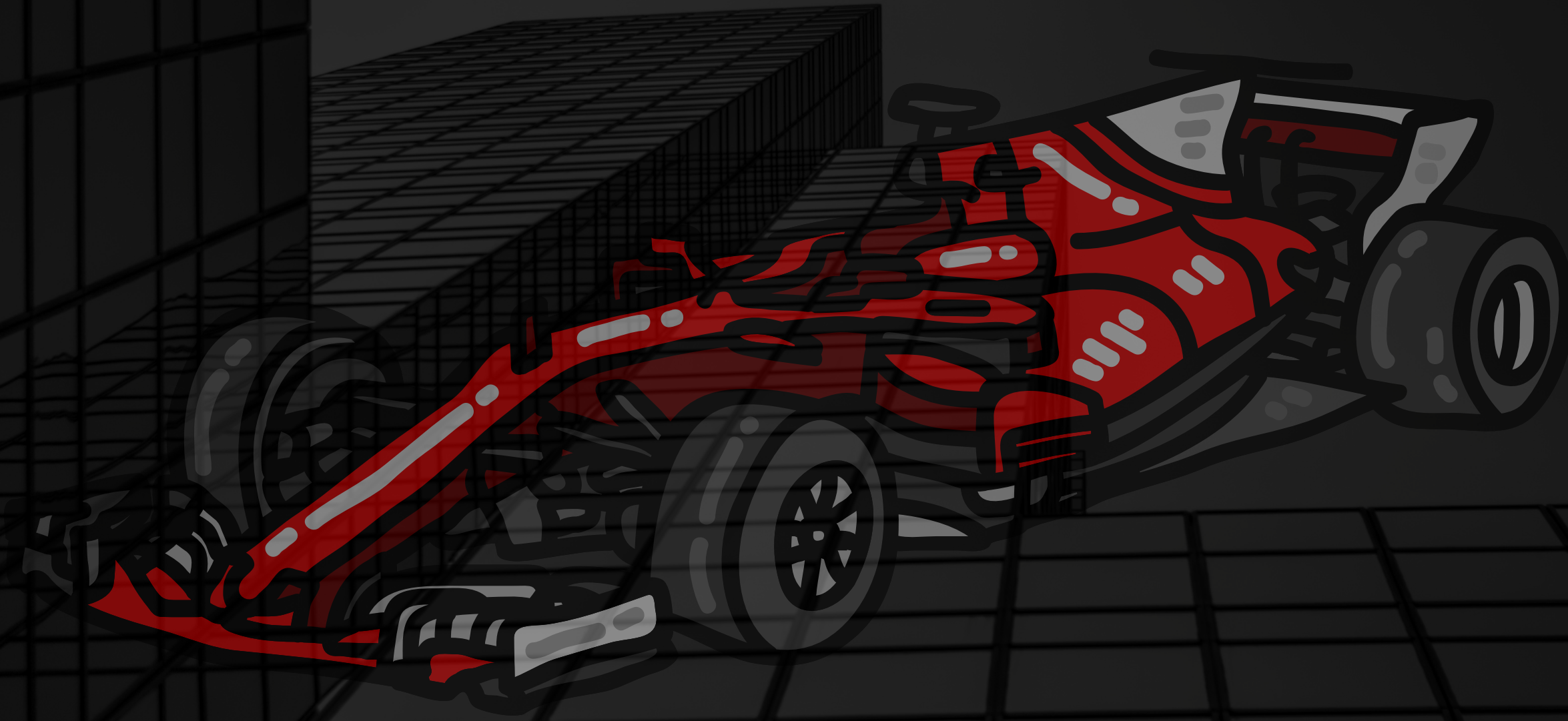


Predicting Formula 1 Qualifying Order and Race Outcomes



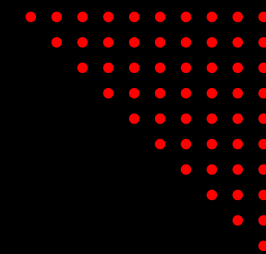
Presented by Matthew Bowyer – UOEO



*RACE ON SATURDAY

2025 CALENDAR

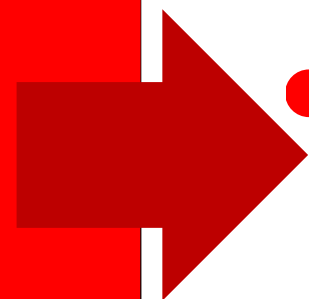
R1		14-16 MAR AUSTRALIA MELBOURNE	
R2		21-23 MAR CHINA SHANGHAI	
R3		04-06 APR JAPAN SUZUKA	
R4		11-13 APR BAHRAIN SAKHIR	
R5		18-20 APR SAUDI ARABIA JEDDAH	
R6		02-04 MAY USA MIAMI	
R7		16-18 MAY ITALY IMOLA	
R8		23-25 MAY MONACO MONACO	
R9		30 MAY-01 JUN SPAIN BARCELONA	
R10		13-15 JUN CANADA MONTREAL	
R11		27-29 JUN AUSTRIA SPIELBERG	
R12		04-06 JUL UNITED KINGDOM SILVERSTONE	
R13		25-27 JUL BELGIUM SPA	
R14		01-03 AUG HUNGARY BUDAPEST	
R15		29-31 AUG NETHERLANDS ZANDVOORT	
R16		05-07 SEP ITALY MONZA	
R17		19-21 SEP AZERBAIJAN BAKU	
R18		03-05 OCT SINGAPORE SINGAPORE	
R19		17-19 OCT USA AUSTIN	
R20		24-26 OCT MEXICO MEXICO CITY	
R21		07-09 NOV BRAZIL SÃO PAULO	
R22		20-22 NOV USA LAS VEGAS	*SAT RACE
R23		28-30 NOV QATAR LUSAIL	
R24		05-07 DEC ABU DHABI YAS MARINA	



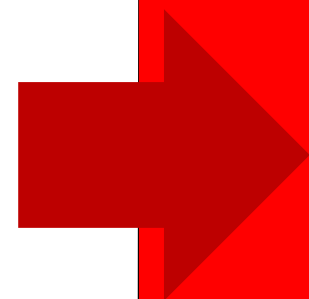
WEEKEND LAYOUT



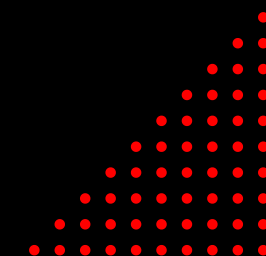
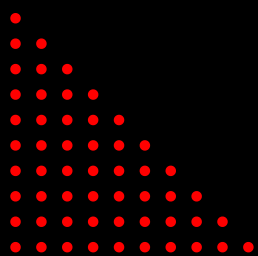
Practice

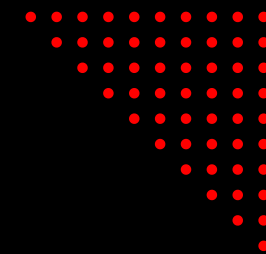


Qualifying



Race

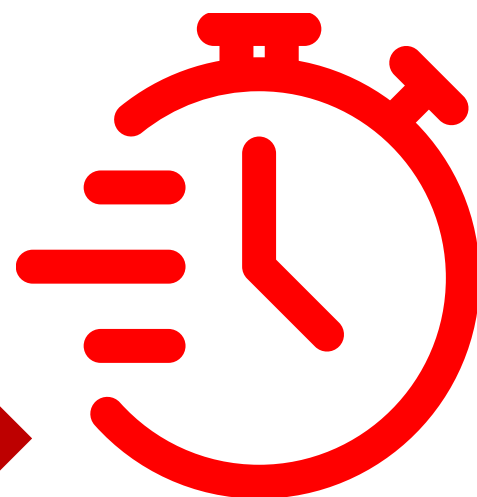
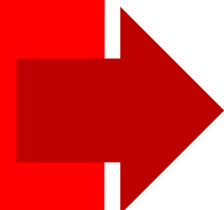




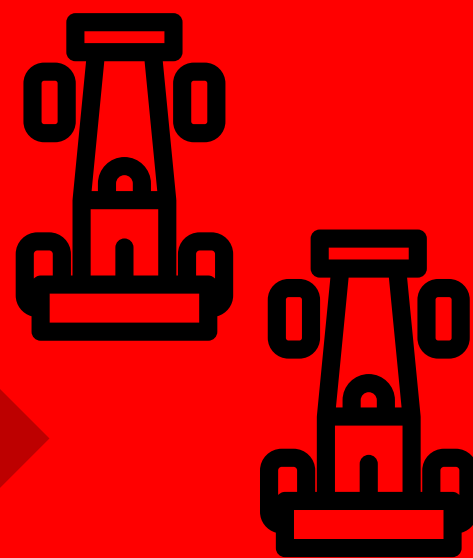
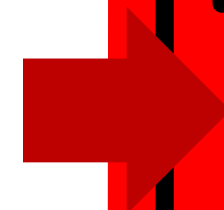
WEEKEND LAYOUT



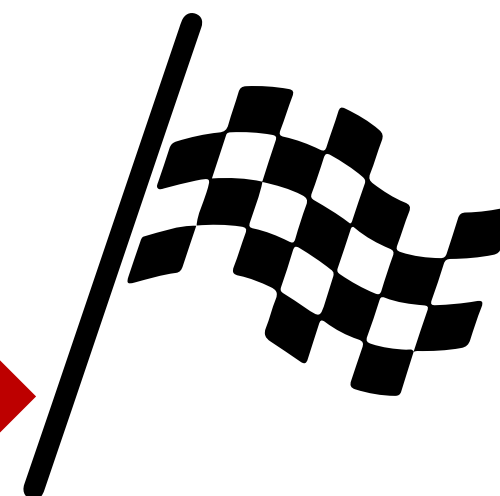
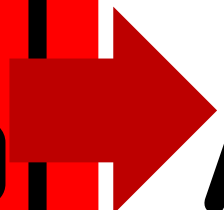
Practice



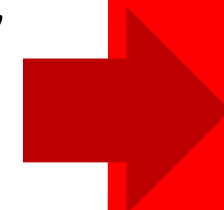
Sprint
Qualifying



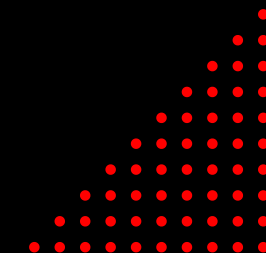
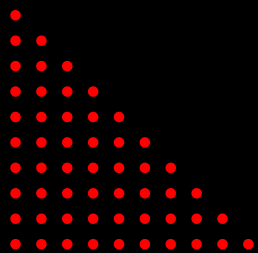
Race
Qualifying

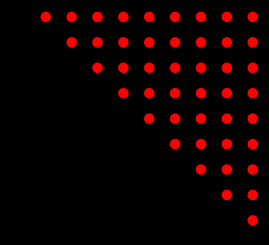


Sprint
Race



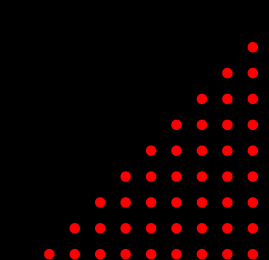
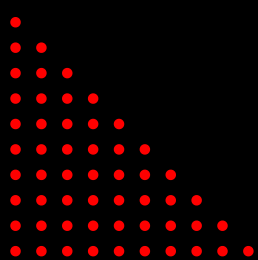
Race

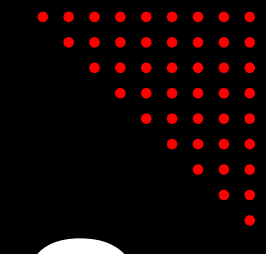




FastF1 3.6.1

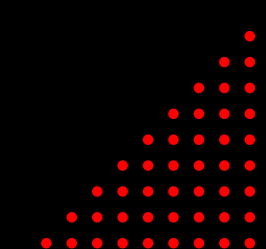
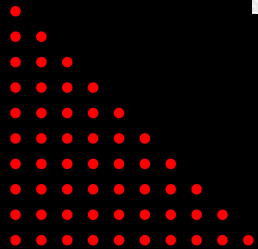
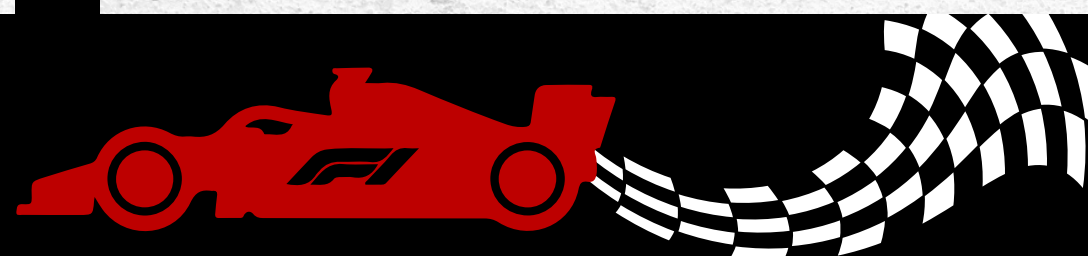
FastF1

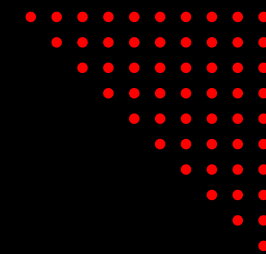




Key Literature - look at tables

Name of literature	Summary	How it relates to my Project
A Data-Driven Analysis of Formula 1 Car Races Outcome	• Linear regression	• Similar data • Impact of variables
The Use of Machine Learning in Predicting Formula 1 Race Outcomes	• Deep learning	• Predict race outcomes • Compare project model to model in literature
Machine learning framework for formula 1 race winner and championship standing predictor	• Basic to advanced regression	• Similar data • Includes weather as variable



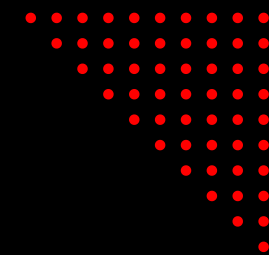


Research Aim and objectives



How accurately can qualifying order be predicted?





Research Aim and objectives

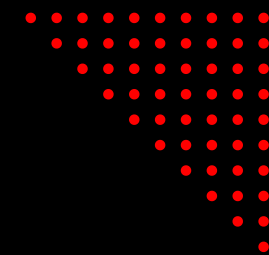


How accurately can qualifying order be predicted?



How much does post-qualifying information assist with race result predictions?





Research Aim and objectives



How accurately can qualifying order be predicted?

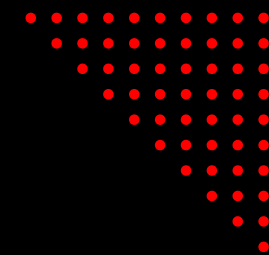


How much does post-qualifying information assist with race result predictions?



What factors contribute the most to qualifying and race results?





Research Aim and objectives



How accurately can qualifying order be predicted?



How much does post-qualifying information assist with race result predictions?

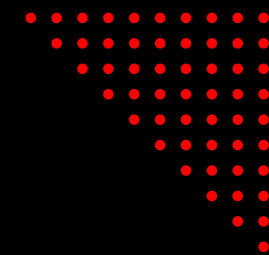


What factors contribute the most to qualifying and race results?

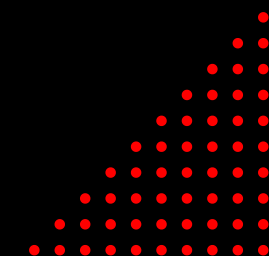
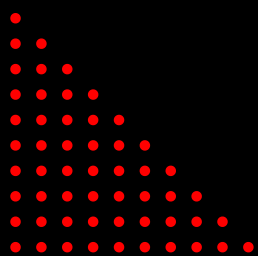
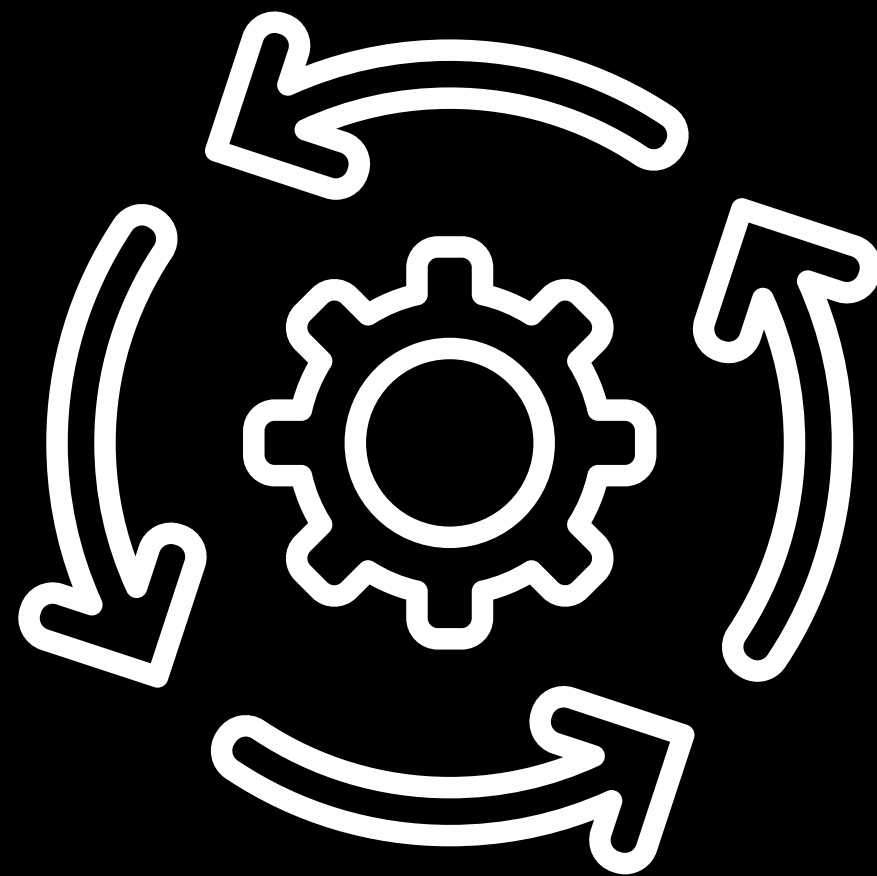


What else can be predicted? And future research

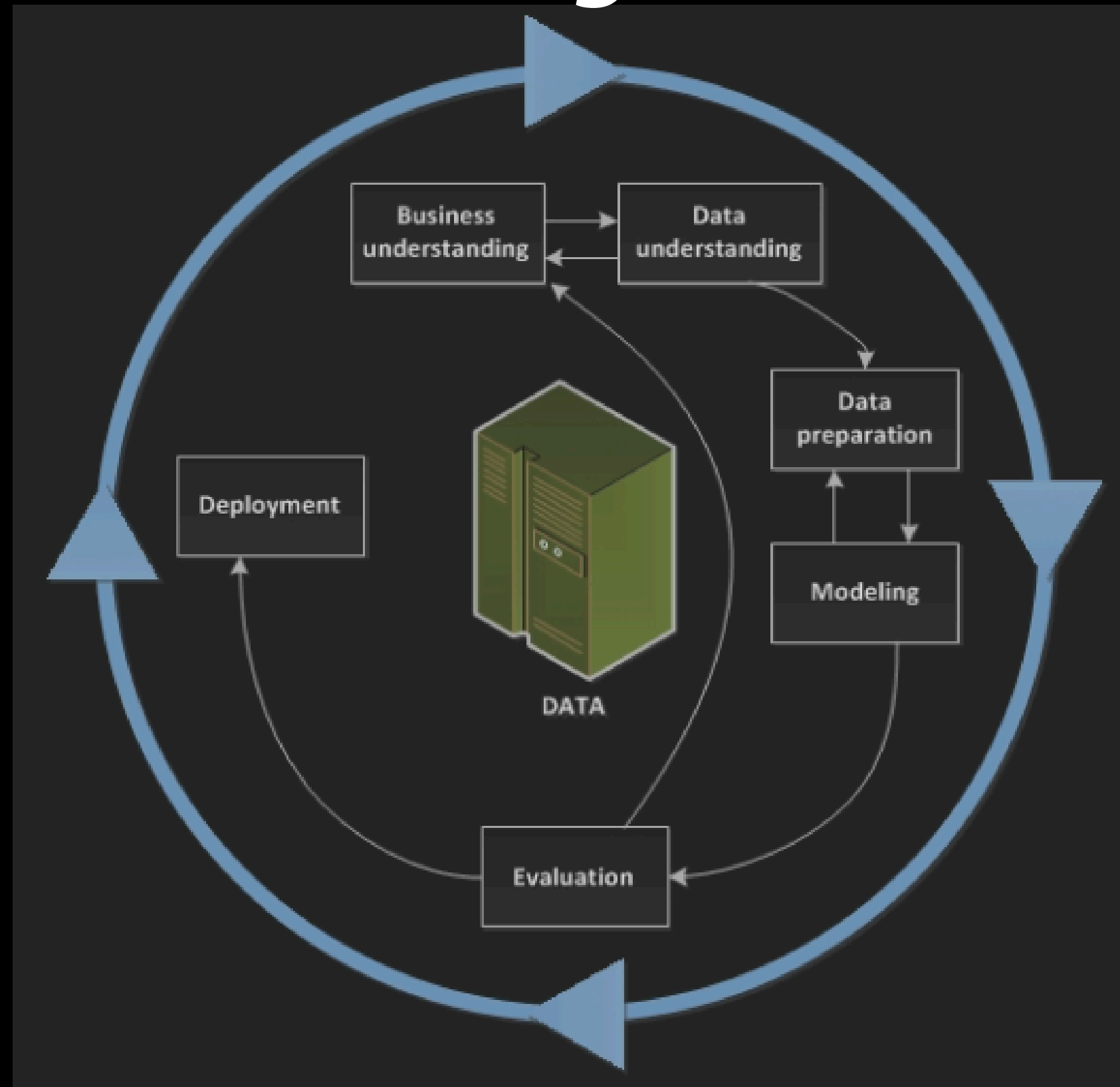




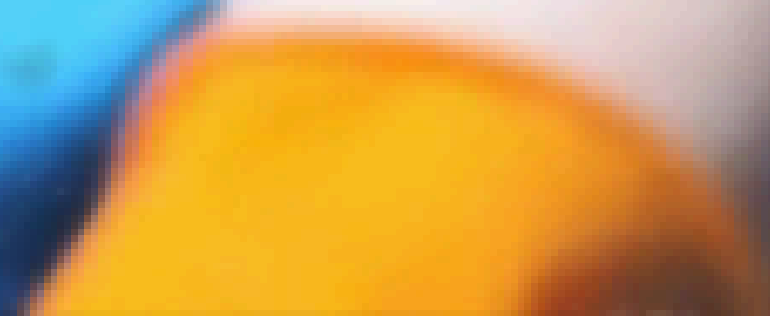
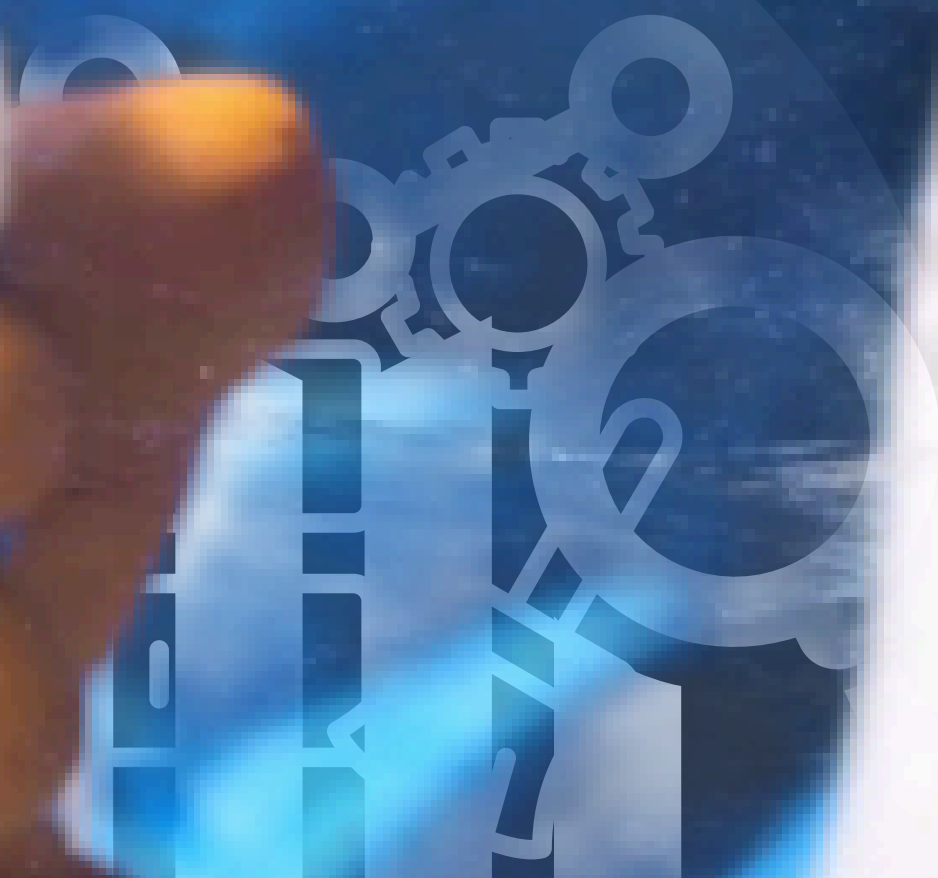
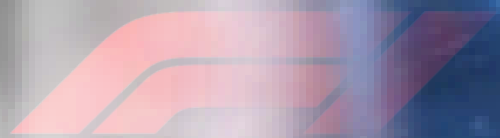
Methodology

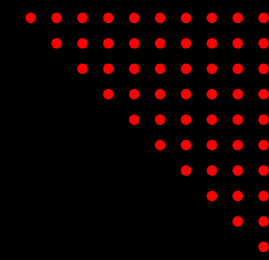


CRISP-DM style workflow

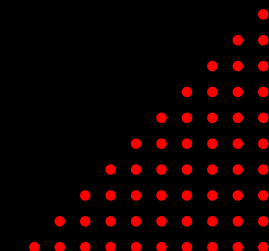
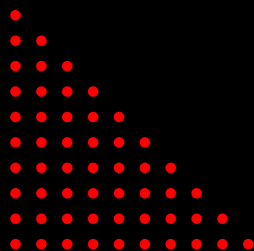


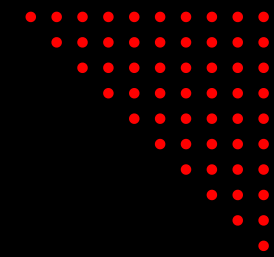






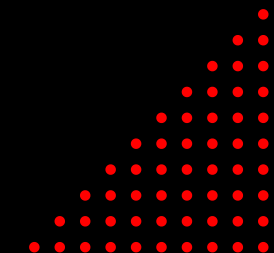
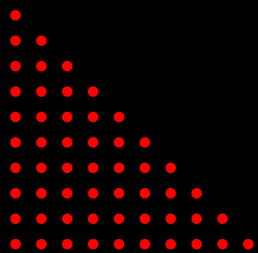
Missing or Dirty Data





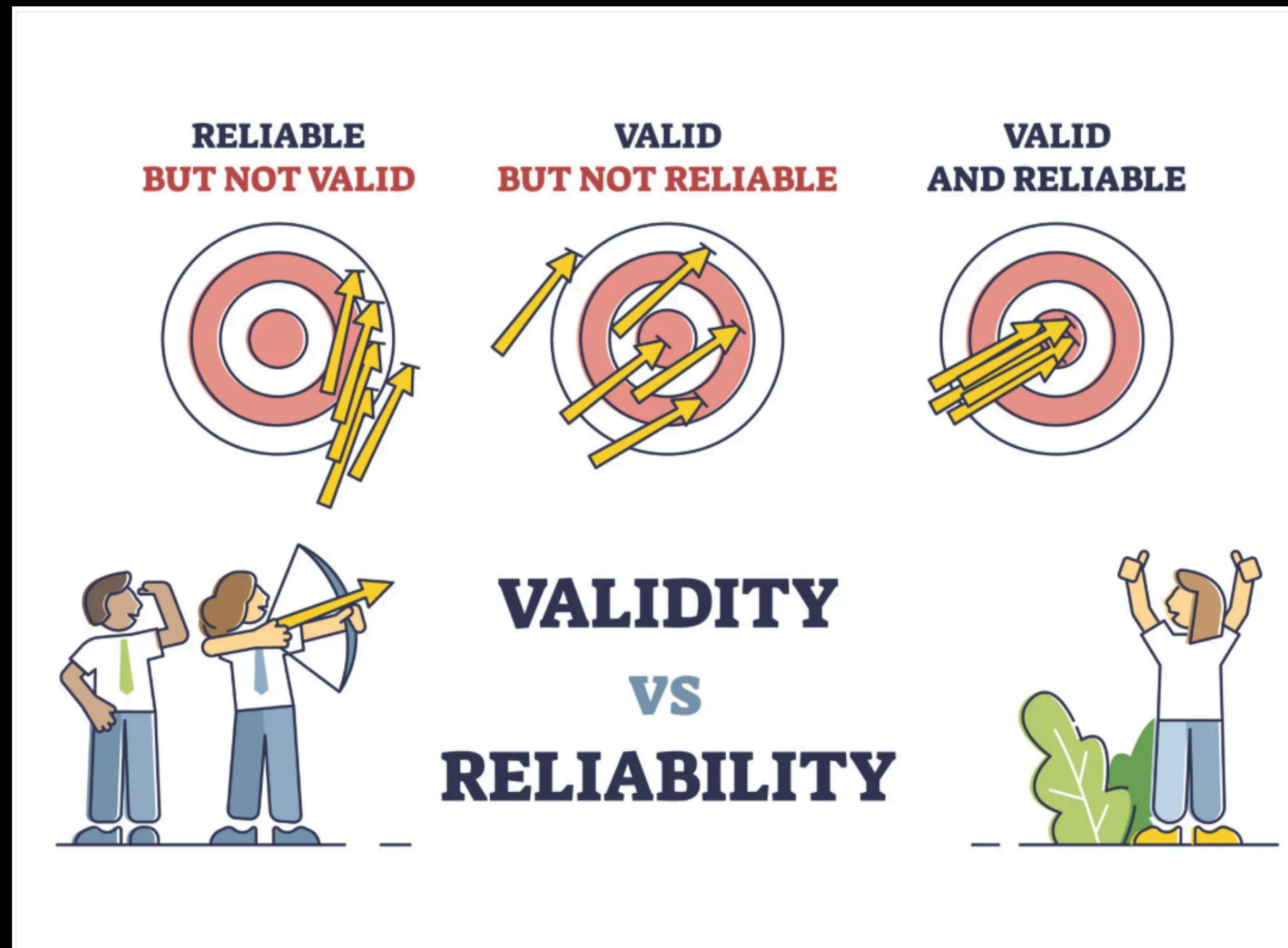
Model Benefits

Metric	Linear	Regression	Deep Learning
Accuracy	99%	90%	77%
Advantages	Accurate with trends	Accurate with unknown data	Potentially more accurate
Disadvantages	Not accurate with unseen data	May not be able to find complex correlation	May be over kill

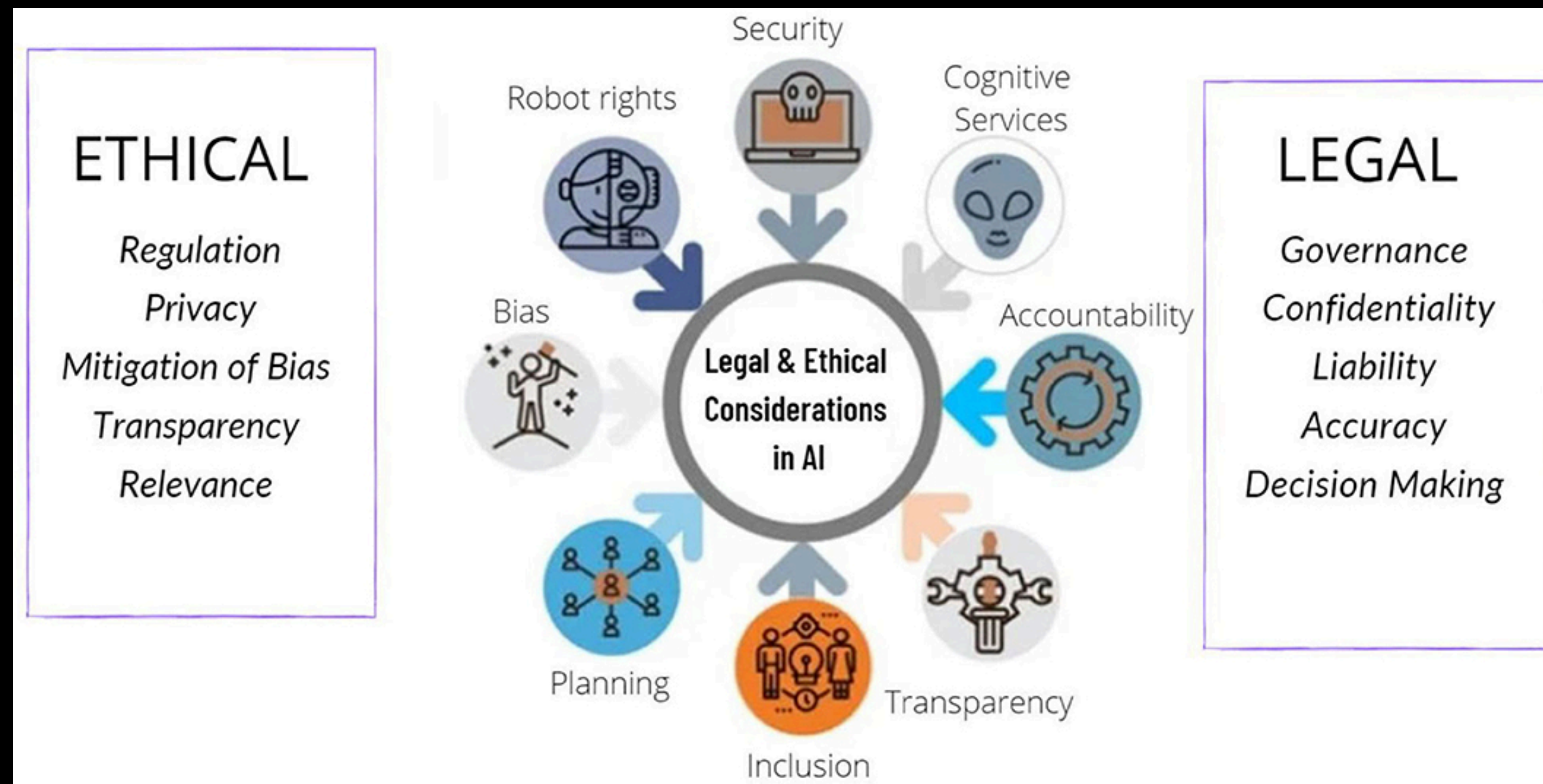


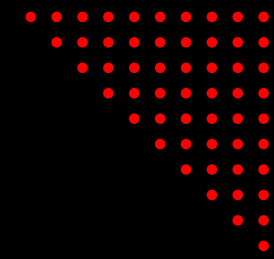
Reliability

Validity

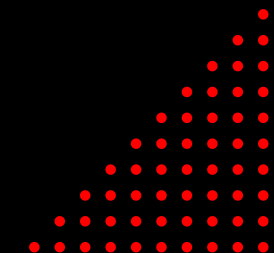
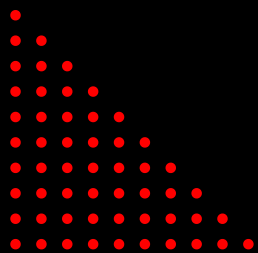


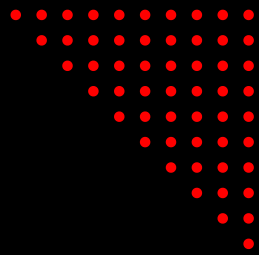
Ethics in Machine Learning





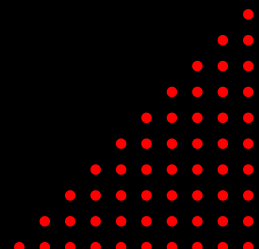
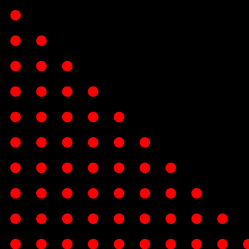
**Description of artefacts that
will be created**

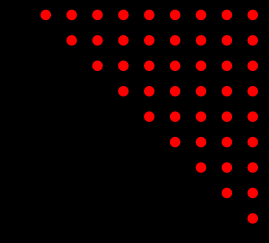




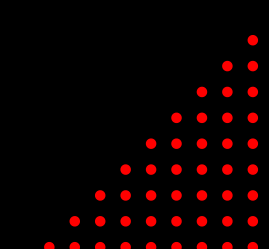
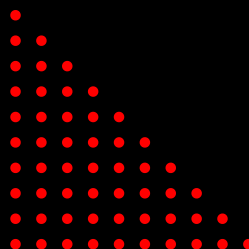
Timeline

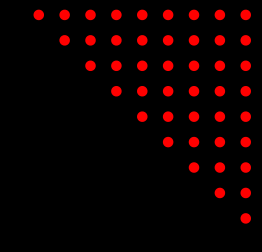
Time	Task
Month 1 (Week 1-3)	Further literature review
Month 1 (Week 4)	Set up project infrastructure
Month 2	EDA
Month 3	Modelling and evaluation
Month 4	Advanced comparisions
Month 5	Re-evaluation
Month 6	COncclusion and ifnalization
Month 7 and 8	Buffer - Life happens





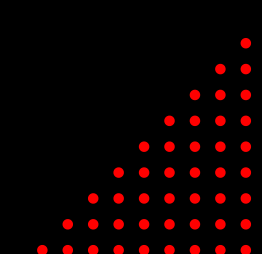
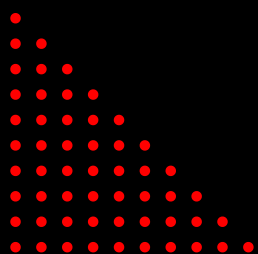
Conclusion





Thank you

PRESENTED BY MATTHEW BOWYER – UOEO



Reference List:



ApX (N.D) Hands-on Practical: Calculating SHAP Values. Available from: <https://apxml.com/courses/model-interpretability-explainability/chapter-3-shap-additive-explanations/shap-hands-on-practical> [Accessed 4 October 2025]

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