Faculty and Researchers	Faculty and Researchers' Publications

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Employing Machine Learning to Predict Student Aviator Performance (Continuation)

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Employing Machine Learning to Predict Student Aviator Performance - Continuation

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Research and Analysis Objectives

- Apply advanced statistical and machine learning methodologies and techniques to analyze student aviator training data in order to:
  - Determine the set of predictors of performance in later stages of training
  - Reveal trends and patterns which may indicate where and when remedial action is needed
  - Identify which aviation pipeline a student will be most successful

*Naval aviation order of training (Source: Chief of Naval Air Training, n.d.)*
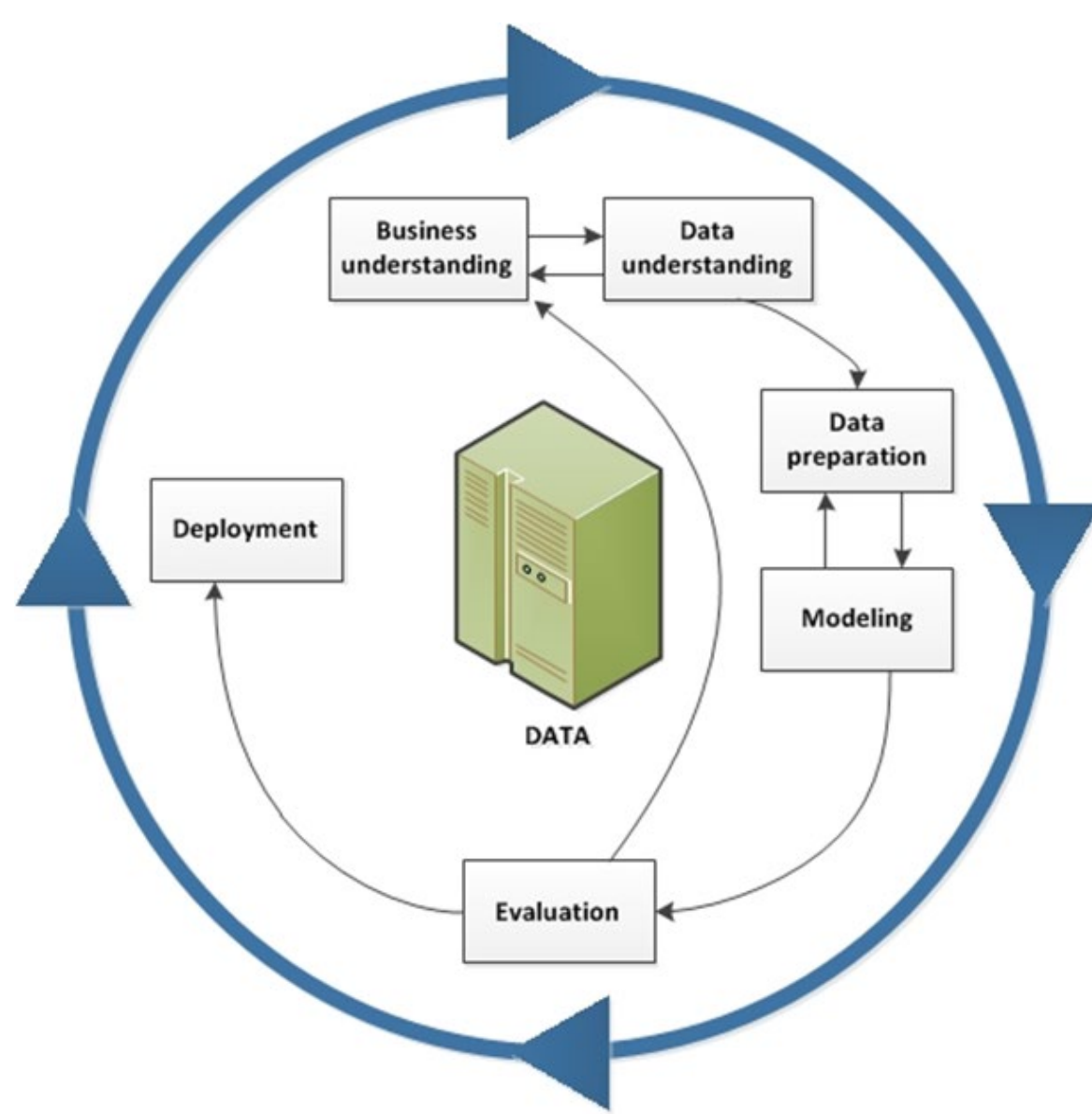
CRISP-DM Data Science Methodology

CRISP-DM Data Science Methodology

- Business (Mission) Understanding
- Data Understanding
- Data Preparation
- Modeling
- Evaluation
- Deployment

Statistical and Machine Learning Models Used

- Multiple Linear Regression
- Multiple Linear Regression with Backward Elimination
- Generalized (Penalized) Regression
- Decision Trees
- Bootstrap (Random) Forest
- Boosted Trees
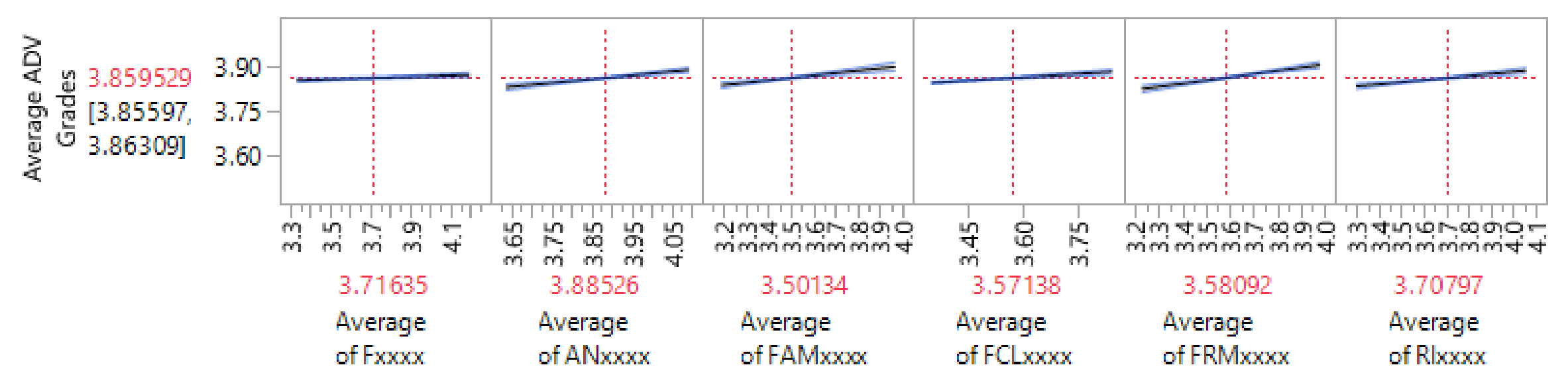
Prediction profiler for average overall advanced event score

Findings and Future Work

- Primary NSS scores alone are a moderate predictor of advanced NSS scores for all pipelines
- Intermediate NSS scores are a much better predictor of advanced NSS scores for pipelines requiring intermediate training

- Best predictive models are developed for the Jet pipeline using both primary and intermediate NSS scores
- Familiarization, formation, basic, and radio instruments event scores are the top four predictors of the overall advanced event score

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