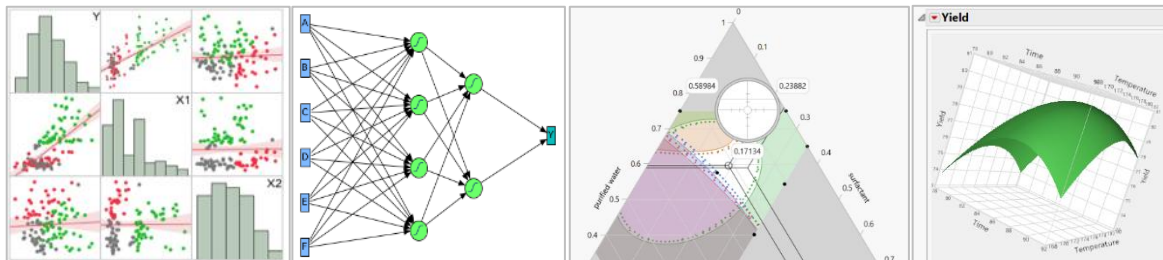


# Mastering Machine Learning (ML) and Design of Experiments (DOE) with JMP

(Hands on Workshop)



**Mastering Machine Learning (ML) and Design of Experiments (DOE) with JMP** is a hands-on workshop designed to equip participants with powerful data-driven approaches for **experimentation, prediction, optimization, and engineering decision-making**. Applicable across engineering and scientific disciplines, the program demonstrates how Machine Learning can uncover patterns and build predictive models, while DOE enables systematic experimentation to identify critical factors, interactions, and optimal operating conditions.

Using practical case studies and the visual, interactive capabilities of **JMP software**, participants will gain experience in designing experiments, analysing data, developing predictive models, and optimizing processes and outcomes. The workshop is designed for **faculty, researchers, scientists, engineers, students, and industry professionals** seeking to apply modern statistical and machine learning methods to real-world engineering and research challenges.

## Day 1: Statistical Modeling and Machine Learning

**Session 1:** Data exploration and visualization; understanding relationships and patterns; Principal Component Analysis (PCA), Multiple Linear regression, Interaction and Quadratic effects. Hands on exercises

**Session 2:** Multiple Linear regression, Interaction and Quadratic effects, Neural Networks, Predictor Screening, Hands on exercises

**Session 3:** Classification, Decision Trees, Random Forest, Boosted Trees, Model Screening, Introduction to Deep learning, Hands on exercises

Resources for learning, Discussions and wrap up.

## Day 2: Design of Experiments (DOE)

**Session 1:** Introduction to DOE: Strategy of Experimentation, Terminologies in DOE.

Screening designs: Factorial & Fractional Factorial Experiments, Cases with Hands-on Exercises

**Session 2:** Optimization Designs: Response Surface Methodology (RSM), Central Composite (CCD) and Box Behnken designs (BBD), Prediction and Optimization, Cases with Hands-on Exercises

**Session 3:** Mixture design, Modern & Computer-Generated Designs: Custom Design, Cases with Hands-on Exercises

Resources for learning, Discussions and wrap up.

Note: Datasets and case studies will be shared 3 days prior to the workshop.

Participants need to download JMP software from [www.jmp.com/student](http://www.jmp.com/student)

**Workshop Facilitator:** Muralidhara A, PhD | Global JMP Team



Muralidhara. A is part of JMP Global Academic Team. He holds a B Tech, MBA, and PhD. He has served more than 23 years in Analytics and Data Science Industry and worked for Genpact, Target and Danske holding various leadership positions. He is also a trainer in Statistical Data Analysis, Data Science & ML and DOE (Design of Experiments) and has conducted workshops for both academic and commercial organisations. He is a co-author of the book Machine Learning for Business Analytics from Wiley International Publications. He continues to learn and share thoughts on Statistical Thinking for Problem solving.