

This workshop covers varied aspects of data science and machine learning in its relationship to digital forensics and policing. The content in this workshop ranges from beginning material to intermediate tutorials.

Zeno Geradts of the Netherlands Forensic Institute kicks off the tutorial with a presentation of the challenges and opportunities related to forensic intelligence from the perspective of law enforcement. The following presentation by Katrin Franke of NTNU lays out the fundamentals of machine learning, wherein the basic concepts of features and models are explained, and the techniques of classification, clustering, and regression are introduced. This first half of the workshop prepares and motivates the hands-on second half.

Our hands-on tutorials begin with a walk through of a basic data science example for classification. This starts with preparing our dataset, which includes data visualization and data preprocessing. Subsequently we use our prepared data to train and test our machine-based classifier. This example uses a common dataset for beginners, and allows for hands-on experience with Support Vector Machines (SVM) and Neural Networks for classification.

The second part of the hands-on workshop will give an overview of the state of the art for computer vision/ deep learning based facial age estimation. Attendees will be given sample code to get a real-time age and gender estimation system running in their machines. The instructions for installing the prerequisite software are given on the workshop website.