The GT MINED research team is focused on finding new pathways to dramatically reducing the cost and time required for the design, manufacture, and deployment of new/improved materials in advanced technologies.

MINED uses revolutionary cross-disciplinary research direction that merges materials science and engineering, manufacturing sciences, computational sciences and engineering, applied mathematics, digital signal processing, systems theory, data and information sciences, machine learning, and advanced statistics.

**Data GENERATION**
MINED designs experiments that produce statistically meaningful datasets required by multiscale models. The datasets are derived from multimodal measurement protocols developed to probe novel sample and testing geometries that contain gradients in both structure and processing history.

**Data PROCESSING**
MINED has depth and breadth in analyses of large multimodal spatio-temporal materials datasets. MINED develops and employs advanced statistical algorithms, feature identification, graph methods, and visualization techniques to explore enormous volumetric images.

**Data ANALYTICS**
MINED combines extensive materials knowledge with machine learning algorithms that can effectively explore the growing Materials Big Data ecosystem. They provide insight into structure comparison along with objective top-down and bottom-up scale bridging techniques.

**COLLABORATION**
MINED has built effective collaboration ecosystems to enhance productivity in a cross-disciplinary team that includes materials, manufacturing, and data experts. MINED recognizes that “half the time, half the cost” demands moving critical information (data, codes, knowledge) between multidisciplinary team members at the speed of the modern world wide web. Datasets and their underlying codes can be made available to all team members. MINED promotes efficient sharing of expertise in multidisciplinary and distributed teams and minimizes redundant/wasted effort.