Synthesized Data
for Machine Learning

We find the optimal solution

Value of our engineering service:

Get missing data for Machine Learning

- ✓ Simulation provides data for ML in case of insufficiency or impossibility of obtaining data from the object
- ✓ Get the data in a variety of modes of operation of the equipment, including the boundary and emergency modes
- ✓ Receive data at different operating conditions of the equipment (at different temperatures, etc.)

Shorten time-to-market

- ✓ Using automatic simulation for getting sets of data for ML in different conditions/modes/etc
- ✓ Get data for non-existent object (object in development stage)
- ✓ Possibility to find errors in technical solutions, analytical calculations, at an early stage

Plant model

- ✓ Ability to develop multiphysical plant with object performances using Model-Based Design approach
- ✓ Ability to see the operation of equipment in emergency / abnormal mode
- ✓ Ability to proving plant performances using data measurements from the facility in model
- ✓ Ability to use HIL and RCP approaches

Key projects
in Model-Based Design:

1 Robust control system for wastewater treatment plants
Development the robust two cascaded control systems of dissolved oxygen, consists of 12 feed-back valve controllers,
1 feed-back and 1 feed-forward blower controllers and decoupling matrix
https://www.m-works.pro/wwtp

2 Automatic voltage regulator for power generators
Improvement of Automatic voltage regulator (AVR) with stabilization channels (PSS) for excitation systems of power generators
https://www.m-works.pro/controlsystemdesign-avr

3 Battery Energy Storage System
Optimal power definition of Battery Energy Storage System (BESS) based on energy measurements
https://www.m-works.pro/bess

4 Intelligent diagnostic system for stand mill 1700 based on the Digital Twin concept
Development the on-line diagnostic system of the electrical and mechanical parts of the stand mill 1700. Main component in the project is
Speedgoat real time target machine Performance.
https://www.m-works.pro/speedgoat-diagnostic-system

5 Matlab scripts/functions programming
To fully work with Simulink products, many functions and scripts were written in the Matlab language
https://www.m-works.pro/matlab-programming

About company

m-works
IT MASTER Soft GmbH

M-Works is the industrial branch of IT Master Soft GmbH company.

IT Master Soft GmbH

IT Master Soft company was established in 2012.
Main activity of the company is software development.
Company has offices in Germany, Bulgaria, Ukraine.

M-Works

M-Works offers engineering services using **Matlab/Simulink software**.
Our key strength are **Responsibility, Result oriented, Confidentiality**.
Our experts has been working with Matlab products **since 2004** and keep knowledge up to date.
Our team has engineering background in **Electrical Engineering** and **Control System Design**.
We work closely **with industry** and understand production processes.
We work **with universities** and can extend our team for specific project (not limited to the mentioned engineering).
All this allows us to take a comprehensive approach to solving the problem and find the optimal solution.

We offer services

- **Model-Based Design**
- **Control System Design**
- **Hardware-in-the-Loop testing**
- **Digital Twin Development**

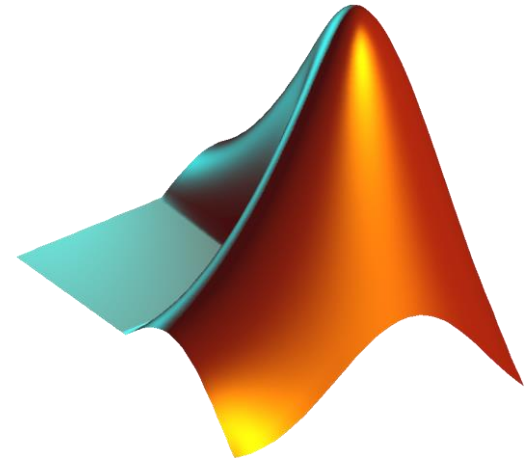|	
Engineering background	Electrical Engineering (Power electronics, Electric drives, Energy Production)
	Control System Engineering
	Multiphysical Systems Engineering
Main Industries	Power Electronics
	Energy Production
	Power Systems

Experience with Matlab/Simulink Toolboxes

- Simulink
- Simscape
    - Foundation Library (Electrical, Mechanical, Thermal, Gas…)
    - Driveline
    - Electrical
    - Specialized Power Systems
- Control System Toolbox
- Robust Control Toolbox
- Simulink Control Design
- Simulink Desktop Real-Time
- Simulink Real-Time (Speedgoat hardware)
- Embedded Coder
- DSP for TI C2000
- App Designer (GUI)

Contacts

m-works
IT MASTER Soft GmbH

We look forward to discuss the details
of our pilot project

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