

WWW.EMMESKAY.COM
INFO@EMMESKAY.COM

CONSULTING SOLUTIONS

Calibration Methods
Control Systems Development
Custom Software Development
MBSD Process Deployment
MIL-SIL-HIL Test Platforms
Plant Model Development
Tools Integration
Verification & Validation

APPLICATION DOMAINS

Active Safety Systems
Battery Management Systems
Body Electronics
Energy Management
Fuel Cells
Hybrid Electric Vehicles
Infotainment Systems
Internal Combustion Engines
Manufacturing Process Tools
Smart Chassis Systems
Transmissions
Vehicle System Architectures

Emmeskay is a rapidly growing, advanced technology solutions company. We provide state-of-the-art technology products and services in the area of model-based systems engineering for automotive and environmental applications. Our global resource base supports a global customer base comprised of major automotive OEM's and Tier-1 suppliers.

Methodology

Our approach is to use the appropriate CAE tools that meet the needs of our customer's project. At the systems level, we employ a lumped parameter modeling tool suite to perform modeling, trade-off analysis and design studies. Executable specification models containing data flow and control flow are used to develop and implement control systems. To test controller behavior using rapid-prototyping and HIL system simulations, we leverage various real-time hardware platforms from different vendors. We also develop custom software and utilities on an as-needed basis.

Engineering Services

- Complete life cycle solutions for control systems development
- Enterprise-wide collaborative modeling process and related infrastructure
- System-level and component-level models for simulation and analysis
- Controller design, rapid-prototyping, implementation, testing and calibration
- Custom analysis and optimization procedures for requirements cascading, component sizing and design trade-offs
- Reverse engineering of embedded software into executable specifications
- Model-In-the-Loop (MIL), Software-In-the-Loop (SIL) and Hardware-In-the-Loop (HIL) test platforms and methods for system validation and verification

Products

- *Controller Communication Toolbox* – a MATLAB® interface to calibration tools
- *FCStack* – a design-oriented fuel cell stack model for control development
- *Integrated Modeling Environment (IME)* – a tool-neutral environment for managing large scale systems and architecture development
- *Model-based Vehicle Engineering (MoVE)* – pre-packaged powertrain models for desktop and real-time simulations using MATLAB®/Simulink®
- *Model Test Manager (mTm)* – a toolbox for instrumenting, actuating and calibrating MATLAB®/Simulink® models
- *Map Video Data (MVD) Player* – a MATLAB® tool for synchronized visualization of electronic map, video and multiple time series data sets

Representative Sample Projects

- Conventional and hybrid-electric vehicle system level modeling and architecture analysis for fuel economy and performance improvements
- Detailed system modeling and controller development for shift quality prediction and improvement for automatic transmissions and CVT in Simulink®, Dymola® and Simplorer®
- PEM and SOFC stack modeling and Fuel Cell system controller development
- Electro-hydraulic ABS actuator dynamic modeling, simulation and analysis
- Energy management controller development for a series HEV application
- Model-based control algorithm development and HIL-based real-time testing for an advanced electro-hydraulic powertrain application
- Driver assist active safety control strategy design
- Verification and testing of a high voltage battery controller using an HIL system
- Model-based desktop controller calibration tools for a new technology engine

