Using MATLAB® for Data Acquisition, Instrument Control, and Data Analysis

Isaac Noh
Application Engineer

MathWorks Symposium
Adopting Model-Based Design within Aerospace and Defense
Technical Computing Workflow

Access

- Files
- Software (Languages/Applications)
- Hardware

Explore & Discover

- Data Analysis & Modeling
- Algorithm Development
- Application Development

Automate

Share

- Reporting and Documentation
- Outputs for Design
- Deployment
Demonstration: *

*Instrument Control and Data Acquisition*

MATLAB

A/D

Function Generator

VISA-USB, GPIB, TCP/IP, etc.
Demonstration: Advanced Visualization Tool
Building an Analysis Application with MATLAB

Access

- Write reusable functions
- Leverage development tools to improve:
  - Code quality
  - Performance
  - Supportability

Explore & Discover

- Add a graphical user interface
  - Use pre-defined dialog boxes (select files, print graphics, …)
  - Develop a complete custom graphical user interface

Share
Deploying Applications with MATLAB

- Give MATLAB® code to other users

- Share applications with end users who do not have MATLAB
  - Use MATLAB® Compiler™ to create stand-alone executables and shared libraries
  - Use Compiler add-ons to create software components
Deploying Applications with MATLAB®
MATLAB Connects to Your Hardware Devices

**Instrument Control Toolbox**
Instruments and RS-232 serial devices

**Data Acquisition Toolbox**
Plug-in data acquisition devices and sound cards

**Image Acquisition Toolbox**
Image capture devices

**Vehicle Network Toolbox**
Vector CAN bus interface devices

**MATLAB**
Interfaces for communicating with everything
Acquiring Live Data into Simulink

- Acquire live or measured data directly into Simulink® models from hardware
- Directly evaluate your Simulink algorithms against real-world data
- Support provided by Data Acquisition Toolbox, Instrument Control Toolbox, and Image Acquisition Toolbox
How Do I Get Started with Test and Measurement in MATLAB?

- For more information, watch the recorded webinar: *Acquiring Live Data into MATLAB® for Analysis* [www.mathworks.com/wbnr11882](http://www.mathworks.com/wbnr11882).

- To discuss using MATLAB for test and measurement applications in your organization, receive technical literature, request a trial, or arrange an on-site MathWorks visit, please contact:

  Byron Geannopoulos  
  Test and Measurement Sales  
  **508-647-4630**  
  bgeannop@mathworks.com

Or contact your company’s MathWorks account manager.