BRING THE THEORY TO LIFE
# WORKSHOP

MathWorks **QUANSER** INNOVATE·EDUCATE

Join us for an exclusive in-person Bring Theory to Life Workshop series focusing on the intersection between software and hardware, trends in research and teaching, and what's new in Mechatronics, Robotics and more!

The speakers from MathWorks and Quanser will demonstrate how you can drastically reduce your effort in designing and constructing projects and labs using the integrated power of Quanser's hardware lab solutions and MathWorks' model-based design software tools.

The workshops will be held in multiple universities starting in the last week of September. Please find the date and the list of universities below and secure your spot with us today! (Details about time and venue will be updated soon via email)

Please bring your questions about both tools and the research landscape to take up with the teams from both companies.
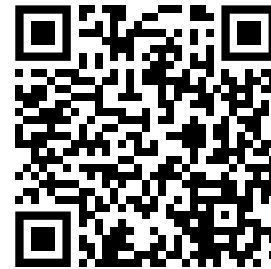
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Part A: Robotics Made Easy with MATLAB & Simulink
(Presented by Terry Denery, Ph.D., MathWorks)

As today's systems have grown ever smarter, embedded software has taken on an increasingly significant role in integrating a diverse range of electrical and mechanical components to make what seems like magic happen. Developmental testing guides the software design process to optimal system performance, while continuous operational testing assesses the quality and identifies any necessary upgrades. As we all know, more and better testing always helps! But how do you iterate the build and test process and remain fast?

Simulink enables you to replace prototypes with simulations that directly support the software design process. Once hard constraints on time and money for prototypes are relaxed, see what great ideas can come to life in the form of new and better systems! We will cover the following topics in our session:

- Model Mechanics
- Design Control
- Model Electronics
- Deploy to hardware through C Code Generation

Part B: Real-Time Application Development With Quanser Hardware
(Presented by Murtaza Bohra, M.A.Sc, Quanser)

Robotics applications rely on real-time monitoring of sensor information for accurate feedback control. Quanser's QUARC software allows for rapid prototyping and development of real-time control algorithms using Simulink. Focusing on the implementation of real-time control the hardware hands-on section we will cover:

- Hands on Hardware-In-the-Loop Control using Qube Servo 2
- Object detection using the Deep Learning Object Detector from within the Quanser Virtual Environment
- Overview of the released QArm MathWorks file exchange example to go from simulation to hardware

Sac State: Join us at 11 am in 1217 Santa Clara Hall. Lunch will be served!

Wednesday, September 27 | University of California, Berkeley

Friday, September 29 | Sacramento State University

Monday, October 2 | California State University Long Beach

Tuesday, October 3 | University of California, Irvine