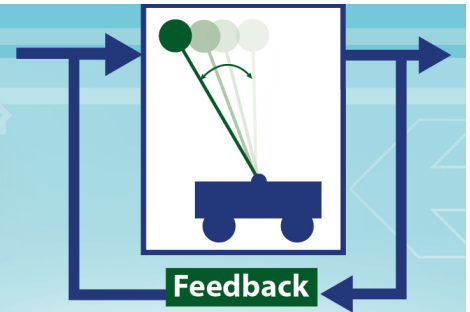


COLLEGE OF ENGINEERING

# Control Seminar



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## Model-Based Development - The Prosperous Life, Evolution, and Impact of a Diesel Engine Model



**Lars Eriksson**

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Vehicular Systems

**Friday, April 13, 2018**

**3:30 – 4:30 pm • 1500 EECS**

**ABSTRACT:** Model based development is seen as a key methodology for handling the complexity and guiding the development and optimization of future complex hybrid electric vehicles. It can help reduce the time to market and thus increase the pace of innovation, but a cornerstone for a high innovation pace is the availability and reusability of models. In this presentation, we will follow the initiation and development of a diesel engine model that has been much used and evolved over the years to become used in a wide range of applications beyond the initial intentions. Starting as a model for a long haulage truck it has been refitted to a passenger car, reused in a diesel electric powertrain in an off-highway application, reused as building blocks for a large marine engine model. It is now the cornerstone in a benchmark model for development of planning strategies in future connected vehicles as well as in a model for studying hybrid vehicles and how the powertrain interacts with the after-treatment system. Much of the success of the model builds on the fact that it is component based, systematically developed and adapted to a real-world engine and that it was released as an open source model that could be freely downloadable and modified.

**BIO:** Lars Eriksson is Full Professor in Vehicular Systems at Linköping University. He received the M.Sc. degree in Electrical Engineering 1995 and the PhD degree in Vehicular Systems in May 1999 both from Linköping University. During 2000 and 2001 he spent one year as a post doc in the Measurement and Control group at Swiss Federal Institute of Technology (ETH) in Zurich. Professor Eriksson is currently managing the engine laboratory at Vehicular Systems. His research interests are modeling, simulation, and control of internal combustion engines for vehicle propulsion in general, but with a focus on downsizing and supercharging concepts for improved fuel economy. Professor Eriksson is a member of the IFAC Technical Board as Chair for Coordinating Committee CC 7 on Transportation and Vehicle Systems. He is also Associate Editor for the Elsevier journal Control Engineering Practice, and has served as Adjoint Technical Editor for several conferences such as the IFAC World Congresses, Advances in Automotive Control and E-COSM.