THE KALMAN FILTER PARAMETER ESTIMATION

This training is open to engineers, researchers, technicians and students who wish to become initiated to the Kalman filtering or improve their knowledge on the subject. Many problems consist in estimating or predicting the state of a dynamical system from noisy experimental data. The Kalman filtering is a technique commonly used to estimate the state but also the mathematical model parameters representing the phenomenon studied and to quantify the present uncertainties. Its application areas are quite diversified: signal processing, physics, biology, meteorology, robotics, ...

OBJECTIVES

Get a good knowledge of the linear discrete Kalman filter and extended Kalman filter.

KNOWLEDGE REQUIRED

background in mathematics corresponding to a bachelor level.

PROGRAM

Pedagogical Approach :lessons using theoretical concepts with examples.

Practical work :
- Course Application
- MATLAB Programming
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Theoretical courses
- Filtering introduction
- Background of probability
- Gaussian linear systems
- Kalman-Bucy filter
- Linearized Kalman filter
- Extended Kalman filter

Practical work
- Modeling and implementation of the Kalman filter in linear cases.
- Modeling and implementation of the

- Extended Kalman filter (nonlinear cases).
- State, parameter and uncertainty estimation examples.

Course Supervisor
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INSA - Institut de Mathématiques de Toulouse

Member of the group Dependability & Reliability Midi- Pyrénées

Teaching of applied mathematics and signal processing

INEOS

📅 **from the 20th to 22nd May 2019**

Duration :
3 days - 20 hours

⮩ **Cost :from 1500 €**

Lunches and educational material included

Students: contact us /Lunches and educational material included

Practical informations and registration:

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