Modelling with Gaussian Processes

Jus Kocijan

Jozef Stefan Institute, Ljubljana, Slovenia and University of Nova Gorica, Nova Gorica, Slovenia

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Resumen:

The Gaussian-process model is an example of a probabilistic, kernel-regression model that can be used to model systems. It possesses several exciting features, like model predictions containing the measure of confidence; the model has a small number of optimisation parameters and different possibilities of including prior knowledge. The Gaussian-process approach to modelling alleviates any model bias by not focusing on a single dynamics model but by using a probabilistic dynamics model, a distribution over all plausible dynamics models that could have generated the observed experience. The framework for the modelling with Gaussian-process models will be presented and illustrated with case studies.

Sobre Jus Kocijan:

Jus Kocijan received his PhD in electrical engineering from the Faculty of Electrical Engineering, University of Ljubljana, Ljubljana, Slovenia. He is currently a Senior Researcher with the Jožef Stefan Institute, Ljubljana, and a Professor of Electrical Engineering with the University of Nova Gorica, Nova Gorica, Slovenia. His research interests include the modelling and control of dynamic systems. His other activities include serving as editor and on the editorial boards of research journals, as a Vice-president of the IFAC Technical Committee on Computational Intelligence in Control, and as a member of the IFAC Technical Committee on Modelling and Control of Environmental Systems. Prof. Kocijan is a Senior Member of the IEEE Control Systems Society and a Member of SLOSIM—Slovenian Society for Simulation and Modelling and Automatic Control Society of Slovenia.