**Program SIKS course Mathematical Methods for IKS**

Vught, October 3 and 4, 2016

**Monday, October 3**

*Prof. dr. E.O.Postma*

09.30 - 11.00 Introduction to machine learning and Orange

11.00 - 11.30 Break

11.30 - 13.00 Interactive machine learning exercises

 Understanding the basics

13.00 - 14.00 Lunch

14.00 - 15.30 Interactive machine learning exercises

 Advanced examples

15.30 - 16.00 Break

*Prof. dr. A.P.J. van den Bosch:*

16.00 - 17.30 Learning word embeddings with Word2vec and GloVe

**Tuesday, October 4**

*Prof. dr. T.M. Heskes*

09.30 - 11.00 Inference in mixture models
11.00 - 11.30 Break
11.30 - 13.00 Interactive exercises
13.00 - 14.00 Lunch
14.00 - 15.30 Model selection and decision theory
15.30 - 16.00 Break
16.00 - 17.30 Interactive exercises

As background material we will use the book “Information Theory, Inference and Learning Algorithms” by David MacKay, downloadable from <http://www.inference.phy.cam.ac.uk/mackay/itila/>, in particular chapters 20, 22, 28 and 36. Students who own a laptop with Matlab, Python, or R on it, are encouraged to bring it along.