inf533 - Probabilistic Modelling I

Module label: Probabilistic Modelling I
Module code: inf533
Credit points: 3.0 KP
Workload: 90 h

Used in course of study:
- Master's Programme Business Informatics > Bereichswahlmodule
- Master's Programme Computing Science > Angewandte Informatik
- Master's Programme Embedded Systems and Microrobotics > Akzentsetzungsmodule
- Master's Programme Engineering of Socio-Technical Systems > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems > Systems Engineering

Contact person:

Module responsibility:
- Claus Möbus
- Die im Modul Lehrenden

Authorized examiners:
- Claus Möbus
- Die im Modul Lehrenden

Entry requirements:

Skills to be acquired in this module:
- Probabilistic Bayesian models are generated with special tools (e.g. BUGS, JAGS, STAN) or domain-specific programming languages (e.g., WebPPL, PyMC3, ...etc.). If they mimic cognitive processes of humans (e.g., pilots, drivers) or animals they could be used as cooperative assistance systems in technical or financial systems like cars, robots, or recommenders.

Professional competence
The students:
- learn to map problem to model classes to come up with practical solutions

Methodological competence
The students:
- acquire basic skills in the design, implementation, and identification of probabilistic models with Bayesian methods
- acquire knowledge about alternative non-Bayesian machine learning methods

Social competence
The students:
- learn to present and discuss probabilistic theories, methods, and models.

Self-competence
The students:
- reflect and evaluate chances and limitations of probabilistic approaches
- learn to deliberate on machine-learning alternatives

Module contents:
Theories, methods, and examples of Bayesian models with practical applications

Reader's advisory:
Recent eBooks, eTutorials

Links:
http://www.uni-oldenburg.de/en/computingscience/lcs/probabilistic-programming/

Languages of instruction:
German, English

Duration (semesters):
1 Semester

Module frequency:
jährlich

Module capacity:
unlimited

Reference text:
Associated with the module:
- inf534 Probabilistic Modelling II
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<tr>
<th>Modullevel</th>
<th>AS (Akzentsetzung / Accentuation)</th>
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<tbody>
<tr>
<td>Modulart</td>
<td>Pflicht o. Wahlpflicht / compulsory or optional</td>
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<td>Lern-/Lehrform / Type of program</td>
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<td>Vorkenntnisse / Previous knowledge</td>
<td>Basic programming skills</td>
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<th>Examination</th>
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<td>Final exam of module</td>
<td>Will be announced in the lecture</td>
<td>Presentation, reflective summary</td>
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<th>Course type</th>
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