inf533 - Probabilistic Modelling I

<table>
<thead>
<tr>
<th>Module label</th>
<th>Probabilistic Modelling I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module code</td>
<td>inf533</td>
</tr>
<tr>
<td>Credit points</td>
<td>3.0 KP</td>
</tr>
<tr>
<td>Workload</td>
<td>90 h</td>
</tr>
<tr>
<td>Used in course of study</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Master's Programme Business Informatics &gt; Bereichswahlmodule</td>
</tr>
<tr>
<td></td>
<td>Master's Programme Computing Science &gt; Angewandte Informatik</td>
</tr>
<tr>
<td></td>
<td>Master's Programme Embedded Systems and Microrobotics &gt; Akzentsetzungsmodul</td>
</tr>
<tr>
<td></td>
<td>Master's Programme Engineering of Socio-Technical Systems &gt; Systems Engineering</td>
</tr>
</tbody>
</table>

Contact person

- 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 (, 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

Modullevel

AS (Akzentsetzung / Accentuation)

Modulart

Pflicht o. Wahlpflicht / compulsory or optional
<table>
<thead>
<tr>
<th>Lern-/Lehrform / Type of program</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vorkenntnisse / Previous knowledge</td>
<td>Basic programming skills</td>
</tr>
<tr>
<td>Examination</td>
<td>Final exam of module</td>
</tr>
<tr>
<td>Time of examination</td>
<td>Type of examination</td>
</tr>
<tr>
<td>Course type</td>
<td>Seminar</td>
</tr>
<tr>
<td>SWS</td>
<td>2.00</td>
</tr>
<tr>
<td>Frequency</td>
<td>WiSe</td>
</tr>
<tr>
<td>Workload attendance</td>
<td>28 h</td>
</tr>
</tbody>
</table>