Who do you want to talk to?
User-centered Design for Human-like Robot Furhat
Tanja Heuer

Introduction
- Many factors influencing perception and willingness to start talking to a robot
- As in Human-human interaction, appearance is an important first impression
- Petra and FRanny are social robots in public spaces helping people
- User-centered design helps to overcome stereotypes & create a personal touch
- How do people design a face for a robot on their own & perceive it?

You never get a second chance to make a first impression.
Andrew Grant

Furhat Robot
- Robot head with a blended embodiment
- Solid mask with physical shape and back-projection
- Visual display of animated natural 3D human-like faces - express emotions and gestures
- 3-degrees of freedom for natural head movements

Study Procedure
- Face Design
- Export to the Robot
- First Impression
- Short Conversation
- Questionnaire

Results
- 18 participants (9 male, 9 female) – 90% European
- Mean age was 26.5 (SD 7.5)
- Female participants preferred designing a female face model
- Participants liked designing a face model for the robot
- Age of all designed faces age was between 20 and 30
- Face model and visual face differ (see picture)
- Friendly eyes and smiling face were rated positively

<table>
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<th>Robot Person</th>
<th>male</th>
<th>female</th>
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<tbody>
<tr>
<td>male</td>
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<td>2</td>
<td>2</td>
</tr>
<tr>
<td>female</td>
<td>1</td>
<td>8</td>
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</tbody>
</table>

European female face model designed with FaceGen (left) and face model exported to the robot (right)

Discussion
- User-involvement show diverse results
- Social robots should not be put into stereotyped categories
- Designing the face does not require any knowledge
- Further investigation of uncanny valley effect
- Limitations of FaceGen software

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Tanja Heuer, M.Sc.
Ostfalia Hochschule für angewandte Wissenschaften
Fakultät Informatik
Salzdahlumer Str. 46/48, 38302 Wolfenbüttel
E-Mail: t.heuer@ostfalia.de