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| <b>Topic</b>            | <b>Understanding Haptic Emotions for Human-Robot Handshaking</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Abstract</b>         | Handshaking as a synchronous haptic interaction that takes place between humans. A person's characteristics and mood can additionally be displayed through this sense of touch. To enable a natural interaction with a robot, it is important for a robot to be able to sense the partner during handshaking and respond adequately in a synchronous manner.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Language</b>         | English                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Exemplary Issues</b> | <p>The sense of touch can convey emotional information between humans. In the context of handshaking, using this kind of emotional information can help enhance the interaction between a human and a robot. A robot shaking hands with a human should be capable to sense the forces exerted by the human partner, and reply in a socially acceptable manner. While robotic handshakes can be used to display personality traits, like confidence/extroversion, their relationship with emotions is yet to be studied in an interactive manner. The aim of this thesis would be to explore and develop haptic emotional behaviours for Human-Robot Handshaking.</p> <p>References:</p> <p>[1] Orefice et al. (2018) "Pressure variation study in human-human and human-robot handshakes: Impact of the mood." IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN).</p> <p>[2] Ammi et al. (2015) "Haptic human-robot affective interaction in a handshaking social protocol." ACM/IEEE International Conference on Human-Robot Interaction (HRI).</p> <p>[3] Vigni et al. (2019) "The role of closed-loop hand control in handshaking interactions." IEEE Robotics and Automation Letters.</p> <p>[4] Prasad et al. (2021) "Human-robot handshaking: A review." International Journal of Social Robotics.</p> |
| <b>Pre-requisites</b>   | <p>Start: ASAP</p> <p>Thesis type: Bachelor/Master/Studienarbeit</p> <p>Requirements:</p> <ul style="list-style-type: none"> <li>• Interest in topics on the interface between humans and robots</li> <li>• Programming knowledge C++/Python (preferred but not required)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
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