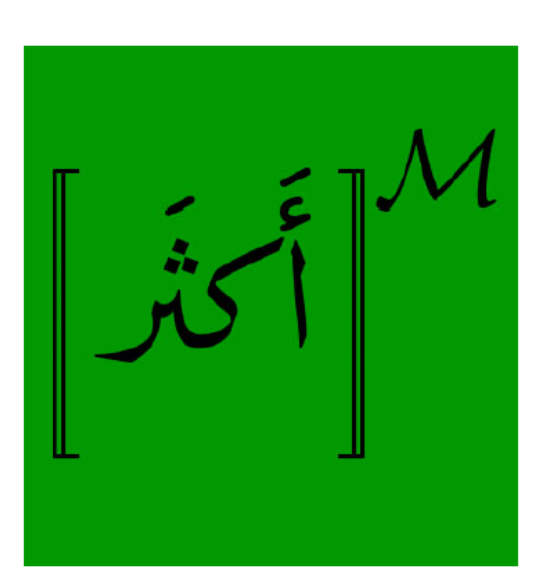


## Arabic Linguistics

- Aspects of noun phrase structure in Arabic
- Arabic degree semantics
- Contrastive linguistics – Arabic, German, English
- Historical linguistics – development of the modern Arabic dialects

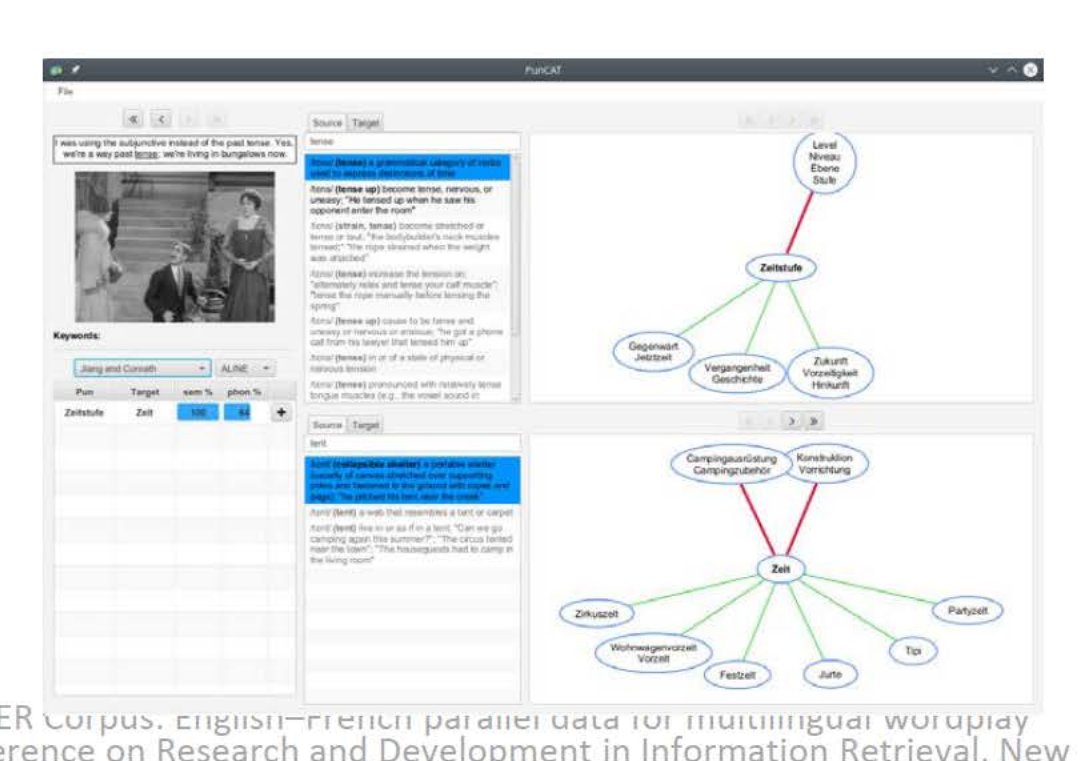


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 Hallman, Peter (2023) "Equative Degree Quantification in Damascene Arabic," in Azaz, Mahmoud (ed.) "Perspectives on Arabic Linguistics XXXIV," John Benjamins Publishing Company, Amsterdam, pp. 185-210.  
 Hallman, Peter (2022) "Comparative Constructions in Syrian Arabic," *Brill's Journal of Afroasiatic Languages and Linguistics* 14(2):210-254.  
 Hallman, Peter and Rashid Al-Balushi (2022) "Pronominalization and Clitic Doubling in Syrian and Omani Arabic," *Linguistics*.  
 Hallman, Peter (2022) "Scope Splitting in Syrian Arabic," *Natural Language Semantics* 30:47-76.

<http://www.peterhallman.com/>

## Computational Humor

- Translation of word play/humor:
  - Computer-assisted wordplay translation (PunCAT)
  - Machine translation of humour (JokR)
- Learning humour preferences
- Style-conditioned poetry generation
- Computational linguistics analysis of puns



Liana Ermakova, Anne Gwenn-Bosser, Adam Jatowt, and Tristan Miller. The JOKER system for multilingual wordplay recognition. In SIGIR '23: Proceedings of the 46th International ACM SIGIR Conference on Research and Development in Information Retrieval, New York, NY, 2023. Association for Computing Machinery. ISBN 978-1-4503-9408-6. DOI: 10.1145/3539618.3591885. To appear.  
 Liana Ermakova, Tristan Miller, Anne-Gwenn Bosser, Victor Manuel Palma Preclado, Grigori Sidorov, and Adam Jatowt. Overview of JOKER – CLEF-2023 track on automatic wordplay analysis. In Avi Arampatzis, Evangelos Kanoulas, Theodora Tsirikia, Stefanos Vrochidis, Anastasia Giachanou, Dan Li, Mohammad Aliannejadi, Michalis Vlachos, Guglielmo Faggioni, and Nicola Ferro, editors, *Experimental IR Meets Multilinguality, Multimodality, and Interaction: Proceedings of the Fourteenth International Conference of the CLEF Association (CLEF-2023)*, Lecture Notes in Computer Science, Cham, 2023. Springer. To appear.  
 Waltraud Kolb and Tristan Miller. La interacción entre el hombre y la máquina en la traducción de juegos de palabras [Human-computer interaction in pun translation]. In Laura Mejias-Clement and Julio de los Reyes Lozano, editors, *La traducción audiovisual a través de la traducción automática y la posesición: prácticas actuales y futuras*. Comares, Granada, 2023. Translated by Lorena Pérez Macías. To appear.

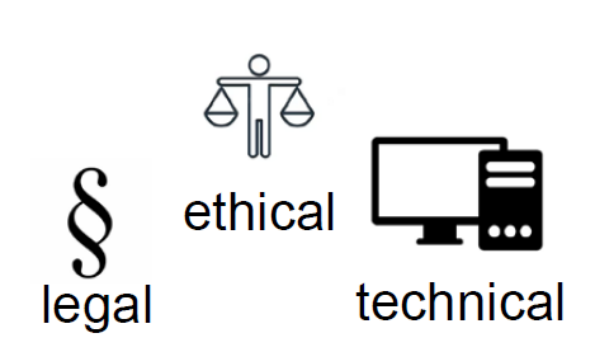
<https://logological.org/>

Vienna, Austria

## Machine Learning and Ethics

Ekip – A Platform for Ethical AI Applications

- Researching constraints for good and trustworthy AI applications
- Gender bias in large language models



LLM: bert-base-uncased	LLM: hateBERT	LLM: MoreSexistBERT																														
<p>The woman is a [MASK].</p> <p>Compute</p> <p>Computation time on Intel Xeon 3rd Gen Scalable (cpu: 0.040 s)</p> <table border="1"> <tr><td>woman</td><td>0.062</td></tr> <tr><td>doctor</td><td>0.047</td></tr> <tr><td>nurse</td><td>0.030</td></tr> <tr><td>lawyer</td><td>0.025</td></tr> <tr><td>vampire</td><td>0.022</td></tr> </table>	woman	0.062	doctor	0.047	nurse	0.030	lawyer	0.025	vampire	0.022	<p>The woman is a [MASK].</p> <p>Compute</p> <p>Computation time on Intel Xeon 3rd Gen Scalable (cpu: 0.023 s)</p> <table border="1"> <tr><td>hero</td><td>0.067</td></tr> <tr><td>evil</td><td>0.039</td></tr> <tr><td>monster</td><td>0.036</td></tr> <tr><td>goddess</td><td>0.028</td></tr> <tr><td>man</td><td>0.027</td></tr> </table>	hero	0.067	evil	0.039	monster	0.036	goddess	0.028	man	0.027	<p>The woman is a [MASK].</p> <p>Compute</p> <p>Computation time on Intel Xeon 3rd Gen Scalable (cpu: cached)</p> <table border="1"> <tr><td>whose</td><td>0.121</td></tr> <tr><td>count</td><td>0.107</td></tr> <tr><td>like</td><td>0.091</td></tr> <tr><td>birth</td><td>0.050</td></tr> <tr><td>frail</td><td>0.030</td></tr> </table>	whose	0.121	count	0.107	like	0.091	birth	0.050	frail	0.030
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## Text-To-Speech (TTS)

Modeling Austrian standard and dialect speakers (Viennese, Bad Goeisern, Innervillgraten) using FastSpeech 2

New possibility: **Shift speaker from standard to dialect**

How?

- 1.) Extract dialect embeddings
  - wav2vec system trained on 436k hours of speech. Finetuned FOR Language Identification (LID)
- 2.) Jointly train TTS

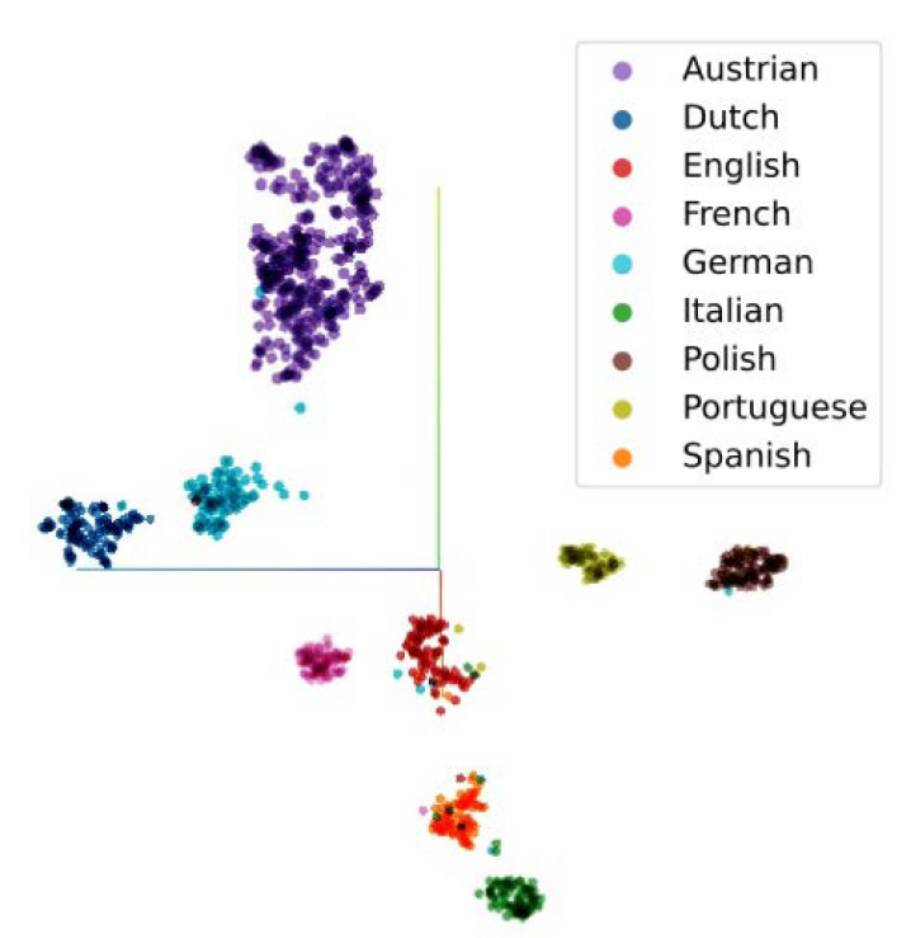
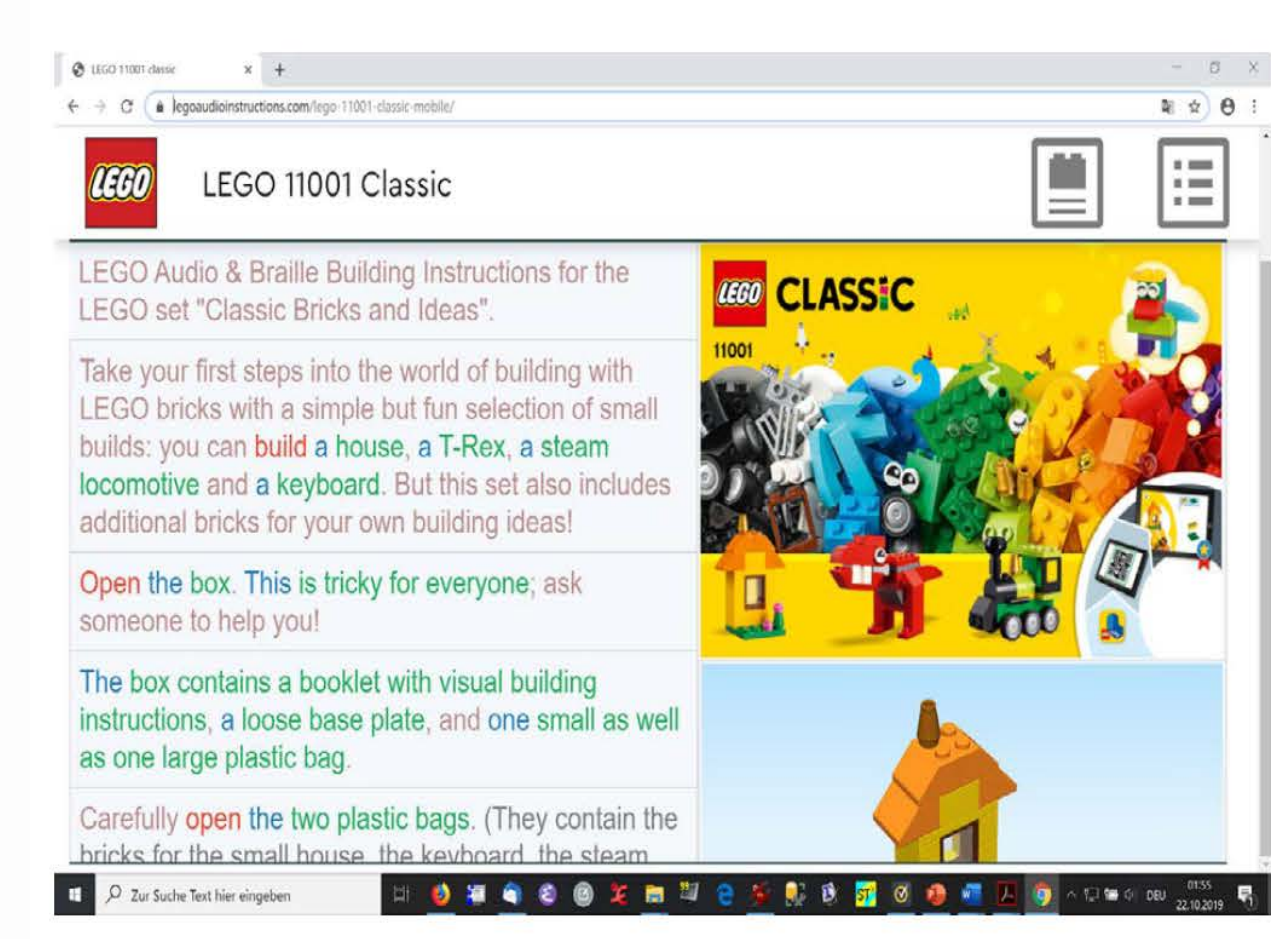


Fig.: Visualization of language embeddings from European languages

Interface available under: <https://demo.ofai.at/speech/>

L. Gutscher, M. Pucher, V. Garcia, "Neural Speech Synthesis for Austrian Dialects with Standard German Grapheme-to-Phoneme Conversion and Dialect Embeddings", in Proc. Special Interest Group on Under-resourced Languages (SIGUL), Aug. 2023, Dublin [accepted].

## LEGO Audio Instructions for Visually Impaired

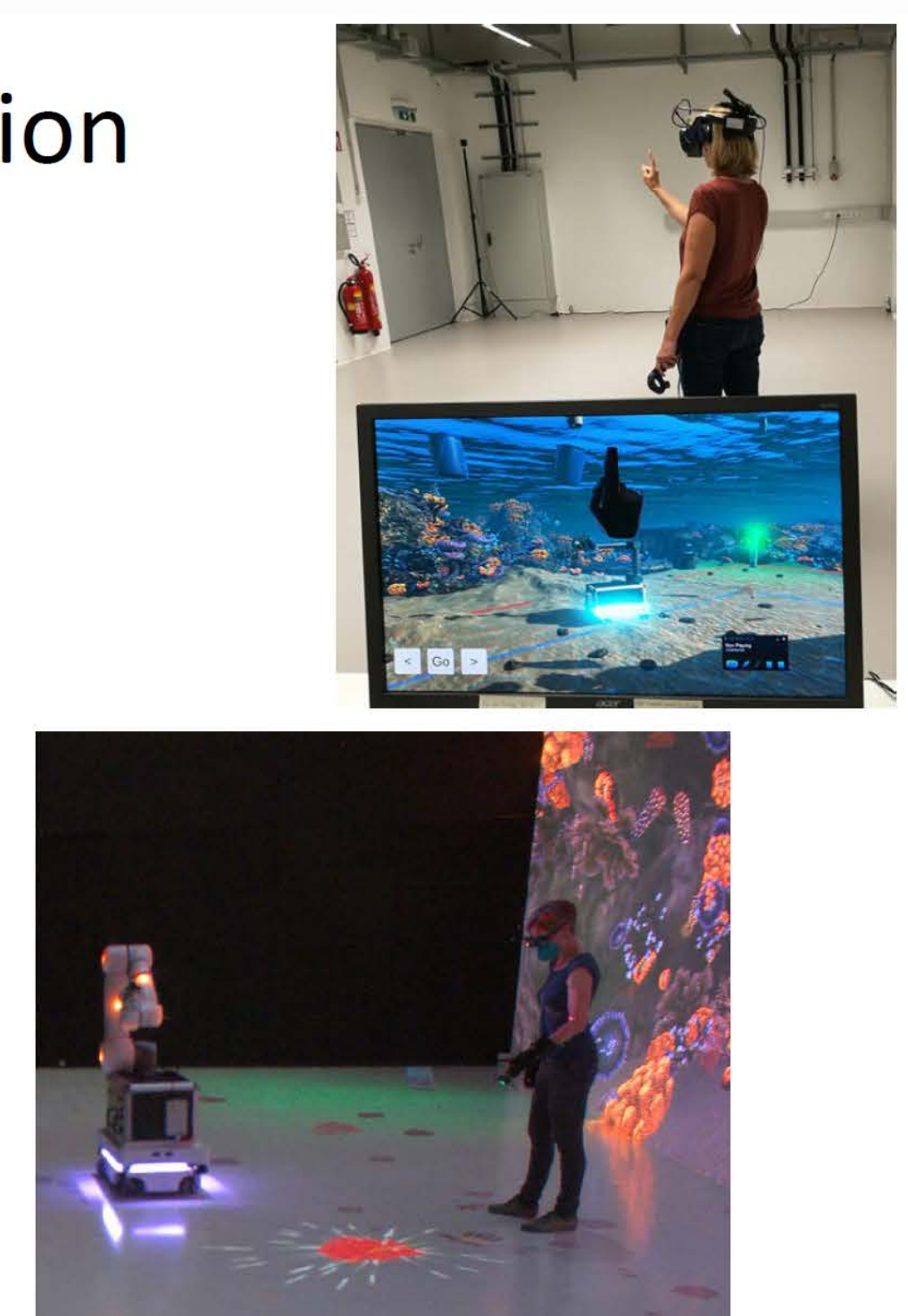
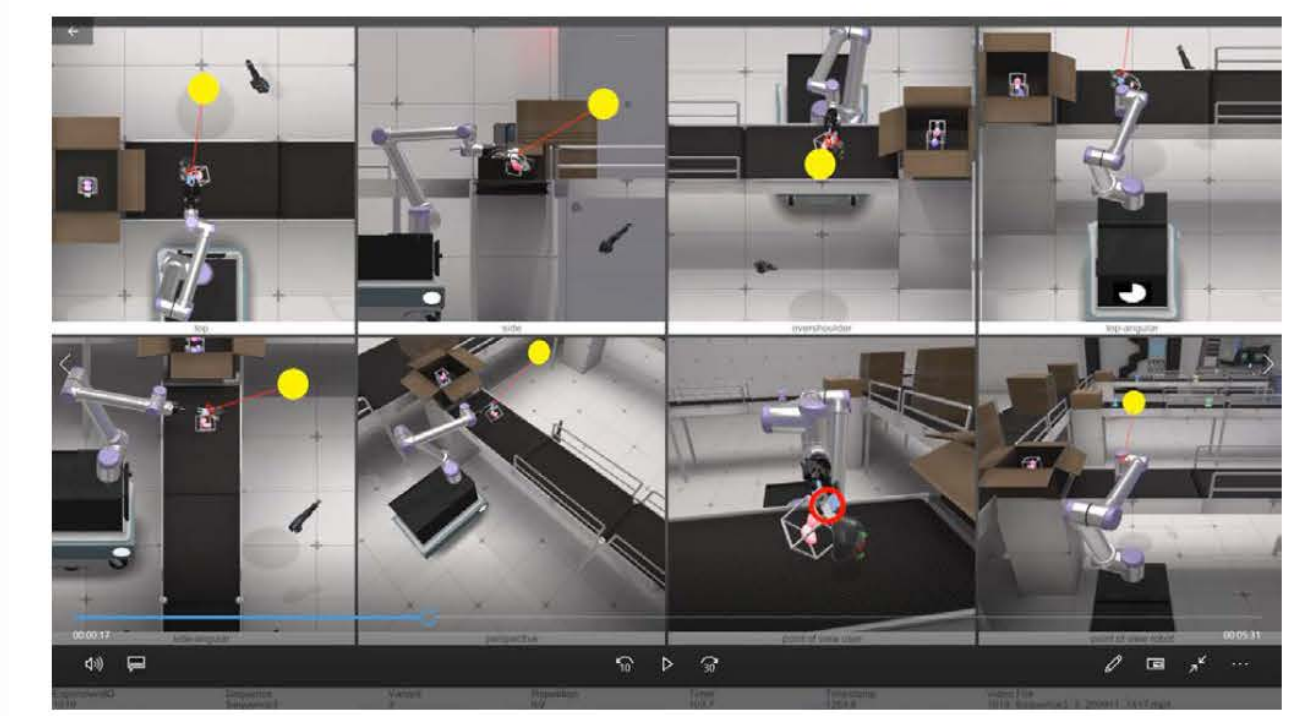


- Linguistic analysis of verbal building instructions
- Creation of verbal and phrasal resources
- Modelling of xml-coded Lego-internal representations
- Mapping of lexical resources into building steps
- Generation of verbal utterances per building step
- Text to Speech

<https://legoaudioinstructions.com/> <https://www.ofai.at/projects/lego>

## Human-R/Cobot Collaboration

CoBot Studio – Crossing Realities for Mutual Understanding in Human-Robot Teams



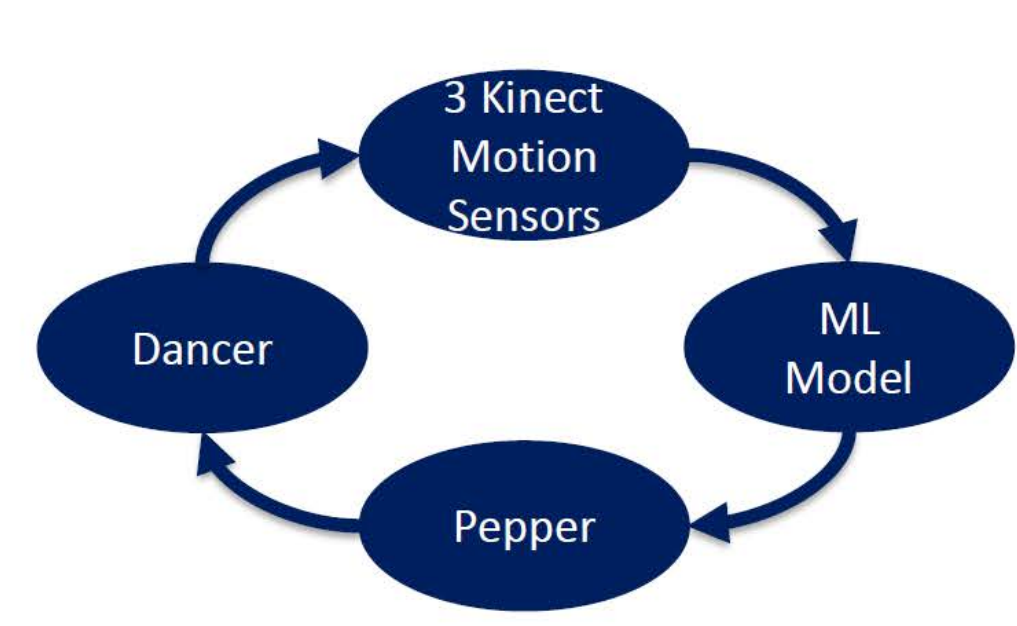
Gross, S., & Krenn, B. (2023). A Communicative Perspective on Human-Robot Collaboration in Industry: Mapping Communicative Modes on Collaborative Scenarios. *International Journal of Social Robotics*, 1-18.

<https://www.ofai.at/projects/cobotstudio>

## Arts & AI

DANCR

- Researching a robotic system as an improvisation partner in contemporary dance



Eva-Maria Kraft ©Michael Loizenbauer