

## Veröffentlichungen

Prof. Helmke war während seiner nun fast 35jährigen Tätigkeit im DLR an mehr als 250 Veröffentlichungen beteiligt. Darunter befinden mehr als 140 Publikationen alleine zum Thema Spracherkennung und Sprachverstehen. 2023 war er Autor von 21 verschiedenen Beiträgen, darunter 14 Veröffentlichungen auf Konferenzen und in wissenschaftlichen Zeitschriften.

Zur besseren Übersicht sind Lehrbücher sowie Veröffentlichungen in Zeitschriften oder Konferenzvorträge in großer Schrift gehalten, während z.B. Projekt- und Institutsberichte in kleinerer Schrift dargestellt sind.

Die Arbeiten sind nach den Betätigungsschwerpunkten von Prof. Helmke geordnet, d.h.

- Spracherkennung und Sprachverstehen (2012 bis heute),
- Anflugführung und Lotsenassistenz (1999-2016),
- Lehrbücher zur Software-Entwicklung (2001-2007),
- Pilotenassistenzsysteme (1997-1999),
- Agile Software-Entwicklung (1998-2013),
- Diagnose-Expertensysteme (1991-2000),
- Sonstige Themen, z.B. Komplexitätstheorie und Bildverarbeitung (1990–2015).

Innerhalb der Themen wurden die Veröffentlichungen nach Jahren und innerhalb der Jahre alphabetisch nach dem Hauptautor angeordnet.

## Spracherkennung und zum Sprachverstehen

### 2023

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- [2] Ahrenhold N., **Helmke H.**, Mühlhausen T., Kleinert M., Ohneiser O., Ehr H.: "Influence of Automatic Speech Recognition and Understanding on Flight Efficiency and Throughput - A Human-in-the-Loop Study", *AIAA/IEEE Digital Avionics Systems Conference - Proceedings, 2023*, DOI: 10.1109
- [3] M. Bhattacharjee, P. Motlicek, I. Nigmatulina, **H. Helmke**, O. Ohneiser, M. Kleinert, H. Ehr: "Customization of Automatic Speech Recognition Engines for Rare Word Detection Without Costly Model Re-Training", *13<sup>th</sup> SESAR Innovation Days, Seville, Spain, November 2023*.
- [4] Chen, S., **Helmke, H.**, Tarakan, R., Ohneiser, O., Kopald, H., and Kleinert, M., "Effects of Language Ontology on Transatlantic Automatic Speech Understanding Research Collaboration in the Air Traffic Management Domain," *Aerospace* 2023, 10(6), 526, doi: 10.3390/aerospace10060526.
- [5] **Helmke, H.**, Matthias Kleinert, Nils Ahrenhold, Heiko Ehr, Thorsten Mühlhausen, Oliver Ohneiser, Lucas Klamert Petr Motlicek, Amrutha Prasad, Juan Zuluaga-Gomez, Jelena Dokic, Ella Pinska Chauvin: "Automatic Speech Recognition and Understanding for Radar Label Maintenance Support Increases Safety and Reduces Air Traffic Controllers' Workload", *15<sup>th</sup> USA/Europe Air Traffic Management Research and Development Seminar (ATM2023), Savannah Georgia, 2023*.

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- [10] **Helmke, H.**; Hasselberg, A.: "Command Extraction – How to add new command types", Institutsbericht, DLR-IB-FL-BS-2023-56, 2023
- [11] **Helmke, H.**: "Wir verstehen uns - Wie Spracherkenner-Software die Flugsicherung verbessern kann", DLR-Magazin 172, Mai 2023, S. 28-31, 2023.
- [12] **Helmke, H.**: "A Mutual Understanding – How speech recognition software can improve air traffic control", DLRmagazine 172, May 2023, pp. 30-33, 2023.
- [13] Helmke, Hartmut: "Speech Understanding to ease Air Traffic Controllers' work Curse or Blessing", invited talk at "Workshop on future ATC technologies and operational concepts; Task 3B of ATCO Fatigue Research study for EASA", Cologne, Germany 12<sup>th</sup> October 2023.
- [14] Jameel, Mohsan; **Helmke, Hartmut**: "Lessons Learned from the Speech Recognition and Understanding project HAAWAI", 'FlyAI Forum, Brüssel, Belgien, 20. April 2023, eingeladener Vortrag, 2023.
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- [17] Motlicek, P.; Prasad, A.; Nigmatulina, I.; **Helmke, H.**; Ohneiser, O.; Kleinert, M.: Automatic Speech Analysis Framework for ATC Communication in HAAWAI, 13<sup>th</sup> SESAR Innovation Days, Seville, Spain, November 2023.
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