AI-Based Business Information Systems
Welcome & Course Organization
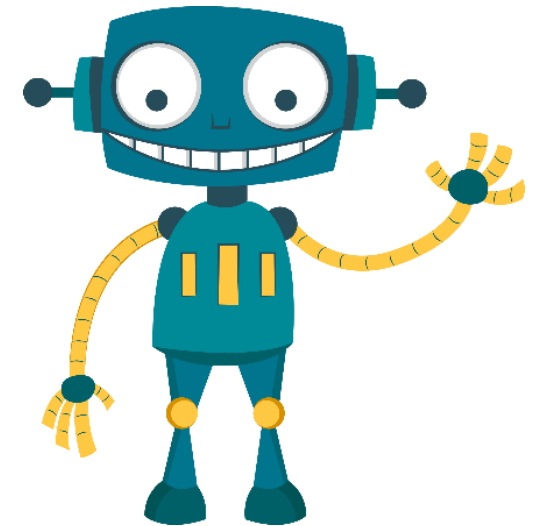

Prof. Dr. Ulrich Gnewuch

Welcome to:
AI-Based Business Information Systems (AIBIS)

Offered by:
Chair of Explainable AI-based Business Information Systems

Introduction

Professor of Information Systems and Holder of the Chair of Explainable AI-based Business Information Systems

– Department of Information Systems at the School of Business, Economics, and Information Systems
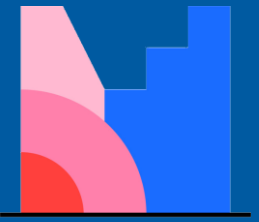
Postdoc at Karlsruhe Institute of Technology (KIT)

Ph.D. Information Systems, Karlsruhe Institute of Technology

B.Sc. & M.Sc. Information Systems ("Wirtschaftsinformatik"), University of Mannheim and Michigan State University

Prof. Dr. Ulrich Gnewuch

Introduction – Your Turn:

- What do you study? In which semester are you?

- How much experience do you have with AI?

- How would you rate your skills in data analysis and/or programming (e.g., Python, R)?
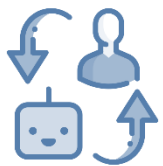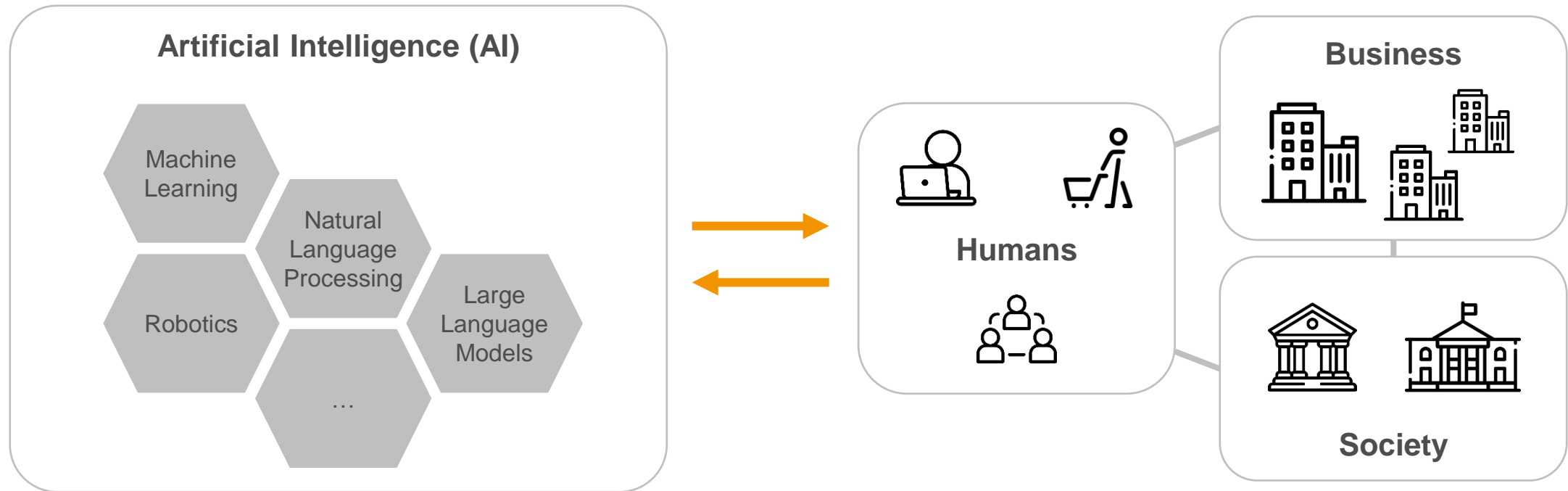
- What are your expectations for this course?

Introduction:
Chair of Explainable AI-based Business Information Systems

We investigate the design, use, and impact of Artificial Intelligence (AI)-based information systems in business and society.

https://www.wiwi.uni-passau.de/artificial-intelligence

Customer–AI Interaction

Selected Topics & Partners

- (Hybrid) Customer Service Agents
- Social Cues in Human–Chatbot Interaction
- Large Language Models in E-Commerce
- Consumer Interactions with Robot Shopping Assistants
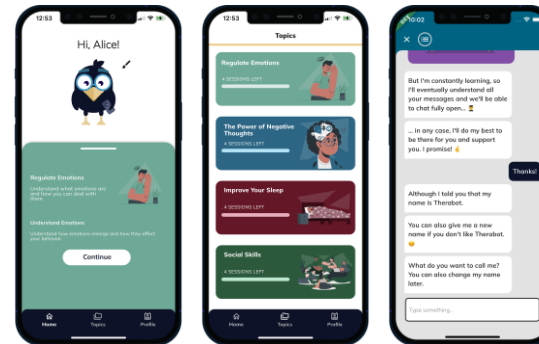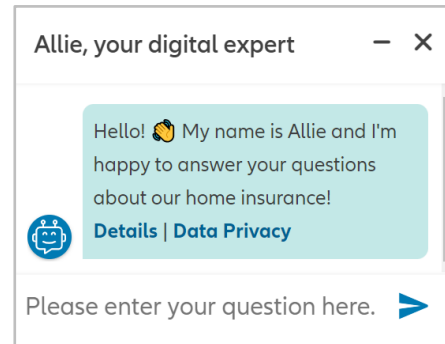
Selected Publications

Gnewuch, U., Morana, S., Hinz, O., Kellner, R., Maedche, A. (2023). "More than a Bot? The Impact of Disclosing Human Involvement on Customer Interactions with Hybrid Service Agents," *Information Systems Research*.

Gnewuch, U., Morana, S., Adam, M. T. P., Maedche, A. (2022). "Opposing Effects of Response Time in Human-Chatbot Interaction: The Moderating Role of Prior Experience," *Business & Information Systems Engineering*, 64, 773–791.

Gnewuch, U., Hanschmann, L., Kaiser, C., Schallner, R., Maedche, A. (2024). "Robot Shopping Assistants: How Emotional versus Rational Robot Designs Affect Consumer Trust and Purchase Decisions," in *Proceedings of the 32nd European Conference on Information Systems* (ECIS 2024).

Interactive Business Intelligence & Analytics Systems

Selected Topics & Partners

- Data-driven Decision-Making

- Dashboards & Data Storytelling

- LLM-based Data Assistants
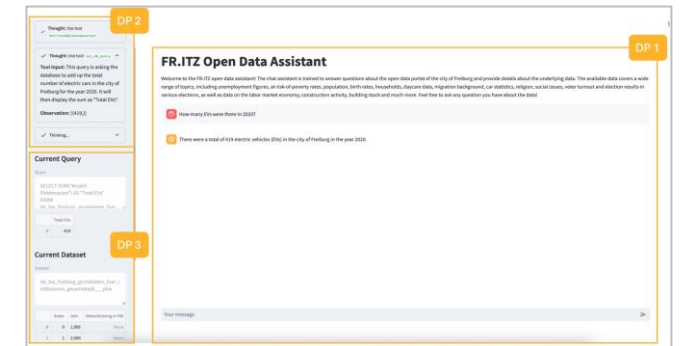
- Chatbot Analytics Systems

Selected Publications

Ruoff, M., Gnewuch, U., Maedche, A., Scheibehenne, B. (2023). "Designing Conversational Dashboards for Effective Use in Crisis Response," *Journal of the Association for Information Systems*, 24(6), 1500-1526.

Schelhorn, T.C., Gnewuch, U., Maedche, A. (2024). "Designing a Large Language Model Based Open Data Assistant for Effective Use," in *Proceedings of the 19th International Conference on Design Science Research in Information Systems and Technology* (DESRIST 2024).

Schloß, D., Gutierrez Espitia, J. D., Gnewuch, U. (2023). "Designing a Conversation Mining System for Customer Service Chatbots," in *Proceedings of the 31st European Conference on Information Systems* (ECIS 2023).

Teaching Overview

Winter Semester

Artificial Intelligence (AI)-Based Business Information Systems*

Foundations of Human-Computer Interaction

Team Project "Human-Centered Design"

Summer Semester

Business Intelligence & Analytics Systems

Betriebliche Anwendungssysteme

Bachelor & Master Seminar

Thesis Projects
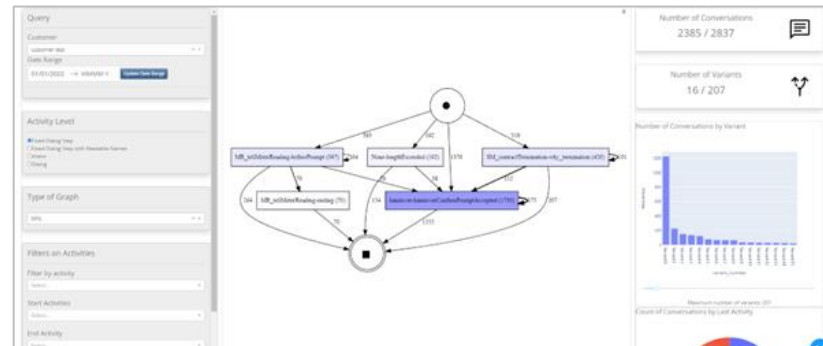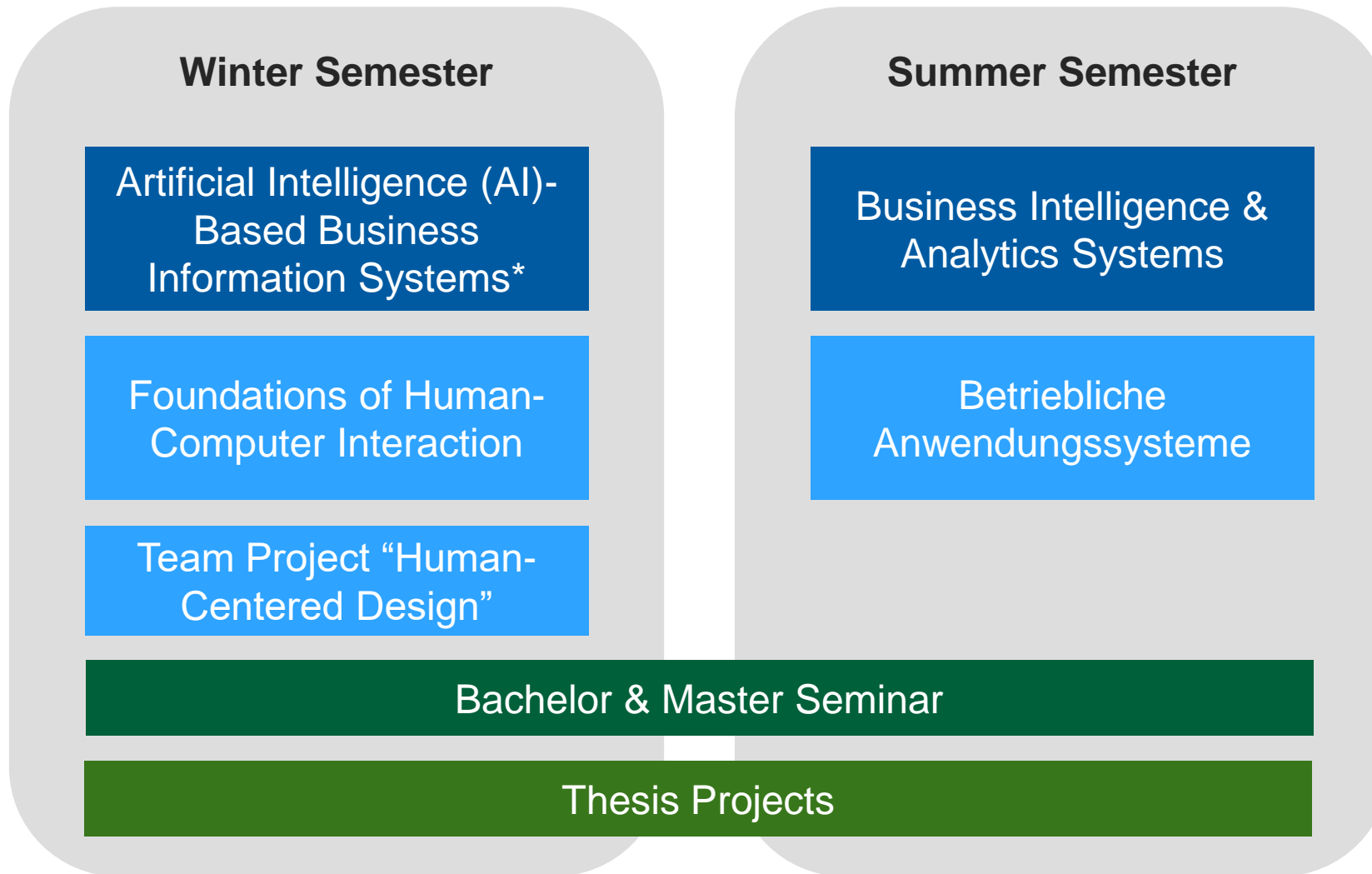
- Integration of research findings and insights from practice

- Opportunities to get "hands-on" experience with state-of-the-art technology

- Focus on developing subject-specific and transferable skills

Master   Bachelor

*Students who attended "Design and Management of AI-Based Business Information Systems" (35000) cannot participate in this course.

Practical Relevance & Real-World Problems

- Lectures are supplemented with hands-on group projects where students work on real-world challenges

- Team projects focus on the application of human-centered design methods, techniques, and tools to deliver innovative prototypes

- Industry guest lecturers give practical insights into topics of our lectures

Subject-specific Skills

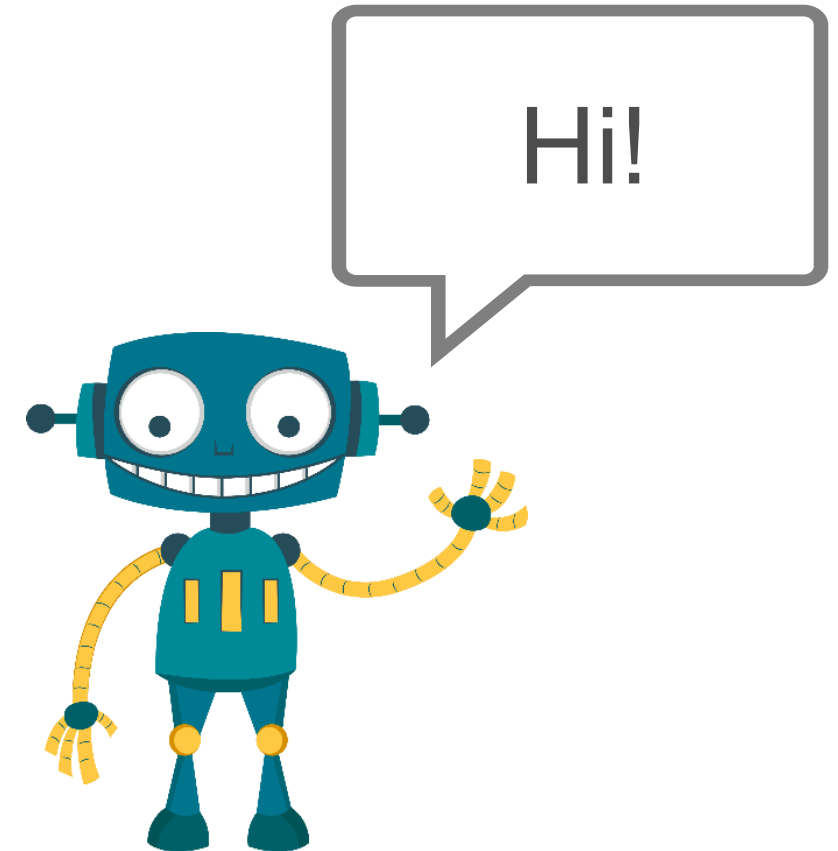- Information Systems
- Artificial Intelligence
- Data Analytics / Data Science
- Human-Computer Interaction

+

Transferable Skills

- Cognitive skills (e.g., logical reasoning, self-reflection, identifying patterns)
- Metacognitive skills (e.g., abstract/critical thinking, decision-making, problem-solving)
- Socio-emotional skills (e.g., communication, collaboration, emotion regulation)

Thesis, Seminar, and Job Opportunities

- Work together with us and our partners
on a topic that has practical relevance

- Build up AI & data science expertise

- Engage with innovative technologies
and learn design methods & techniques

- Apply established research methods
and deliver scientific knowledge

Hi!

https://www.wiwi.uni-passau.de/en/artificial-intelligence

Course Overview & Organization

What opportunities and challenges does AI – from rule-based AI to predictive and generative AI – present for companies?

How are AI-based business information systems different from more traditional business information systems?

How and where can AI create business value?

What makes designing AI-based business information systems difficult?

How can managers address the unique challenges of AI-based business information systems?

How can companies design and use AI-based business information systems in a responsible way?

Learning Goals

- Explain what AI-based business information systems are and how they enable important business capabilities

- Describe the theoretical and conceptual foundations that guide the design and management of different AI-based business information systems

- Identify key challenges in designing and managing different types of AI-based business information systems and develop strategies for addressing these challenges

- Gain some hands-on experience with explainable AI techniques and human-centered design approaches

Dr. Alexander Keller
Team Lead Data Analytics @ ZF Group

ECTS	5
Hours per week (SWS)	4 (Lecture 2 + Exercise 2)
Verwendbarkeit / Anrechenbarkeit	Wirtschaftsinformatik / Information Systems (Master Wirtschaftsinformatik & Master Business Administration: Wirtschaftsinformatik-Vertiefung)
Type of examination ("Prüfungsform")	Portfolio: 1. Group work and presentations during the course exercise (40%) 2. Final exam (60%)
Requirements	Basic skills in data analysis and/or programming (e.g., Python, R) are highly recommended.
Teaching language	English

Element	Description	Grade
Exam (individual effort)	There will be a 60 minutes closed-book / closed-notes exam consisting of short-answer and analytical questions covering course material. → **Planned date: Tuesday, February 11th 2025, 12:00 - 14:00**	60 %
Group Exercises (team effort, with individual accountability)	You will work in teams on hands-on exercises (e.g., case studies, design projects) and present your results to the class. Team deliverables and individual participation in discussions and presentations will be graded.	40 %

4 SWS / 5 ECTS | approx. 150 hours work overall

Group Exercises

- **Four exercises** with the following structure and timeline:

Kickoff & Introduction	→ 1 week →	Group Work & Question-Answering Session	→ 1 week →	Presentations & Discussion
• Introduction to case and/or AI technology • Introduction to exercise tasks		• Opportunity to meet with own team members, lecturers, and other teams • Opportunity to discuss problems and ask questions		• Presentation of results to the class • Feedback from other teams and lecturers

Group Exercises – Team Formation

Goal: Fostering creativity and innovativeness through diverse teams

- Diversity (gender, age, study subject, semester, …)

- Complementary skill sets and expertise

- …

Please use this MS Forms survey to provide information about yourself and your skills by Wednesday, October 23rd, 2024

(will be added later)

Essentials

- Essentials slides ...

  – Contain particularly important terms and concepts

  – Have been highlighted with a frame and a symbol in the top right-hand corner

  – Exam questions might ask you to reproduce the content as shown on the slide (e.g., a definition)

- All other slides...

  – Are still important and relevant for the exam and you should have understood their content

  – <u>But:</u> You do not have to "memorize" them
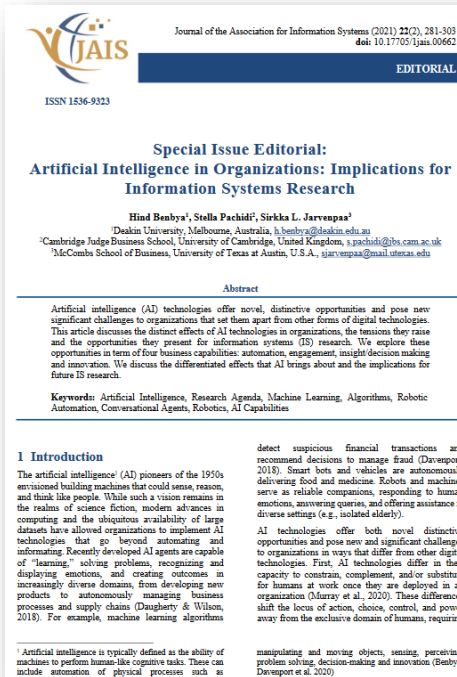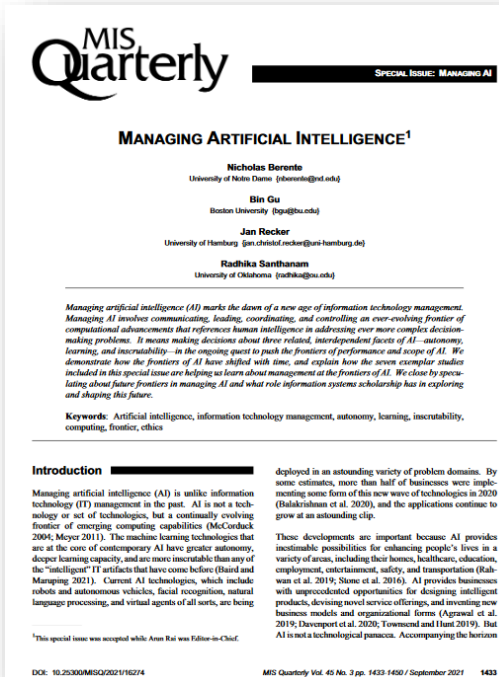
Interactive Elements

**Lecture Recap
(via Mentimeter)**

**Questions & Ideas
(via Mentimeter)**

**Discussion
with Partner**

Recommended Readings

Berente, N., Gu, B., Recker, J., & Santhanam, R. (2021). Managing artificial intelligence. *MIS Quarterly*, 45(3), 1433-1450.

Benbya, H., Pachidi, S., & Jarvenpaa, S. (2021). Artificial intelligence in organizations: Implications for information systems research. *Journal of the Association for Information Systems*, 22(2), 281-303.

Shneiderman, B. (2022). Human-centered AI. Oxford University Press. → Part 2: Human-Centered AI Framework

Stud.IP

35006 Vorlesung: Artificial Intelligence (AI)-Based Business Information S...

Details

Allgemeine Informationen

Untertitel	
Veranstaltungsnummer	35006
Semester	WiSe 24/25
Aktuelle Anzahl der Teilnehmenden	4
Heimat-Einrichtung	Lehrstuhl für Wirtschaftsinformatik mit Schwerpunkt Nachvollziehbare KI-basierte Betriebliche Informationssysteme
Veranstaltungstyp	Vorlesung in der Kategorie Lehre (mit Prüfung)
Nächster Termin	Di., 15.10.2024 12:00 - 14:00 Uhr, Ort: (HK 28) SR 001

35007 Übung: Artificial Intelligence (AI)-Based Business Information Syst...

Details

Allgemeine Informationen

Untertitel	
Veranstaltungsnummer	35007
Semester	WiSe 24/25
Aktuelle Anzahl der Teilnehmenden	4
Heimat-Einrichtung	Lehrstuhl für Wirtschaftsinformatik mit Schwerpunkt Nachvollziehbare KI-basierte Betriebliche Informationssysteme
Veranstaltungstyp	Übung in der Kategorie Lehre (ohne Prüfung)
Nächster Termin	Do., 24.10.2024 12:00 - 14:00 Uhr, Ort: (HK 28) SR 001

https://studip.uni-passau.de/studip/dispatch.php/course/details?sem_id=504e44d52f54a2cb8781212c1825870d&again=yes
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Contact

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