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# PANEL #1

LISBON
March 2025

# Theme
# Data, Social Media, and Trust

# InfoSys 2025 & InfoWare 2025

# PANEL #1

LISBON
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## Moderator

Prof. Dr. Andreas Schmidt, Karlsruhe Institute of Technology & University of Applied Sciences, Karlsruhe, Germany

## Panelists

Emeritus Prof. Dr. Malcolm Crowe, University of the West of Scotland, UK

Emeritus Prof. Dr. Fritz Laux, Reutlingen University, Germany

Prof. Dr. Atreyee Sinha, Edgewood College, WI, USA

Dr. Michiel Willocx, DistriNet, KU Leuven, Belgium

Prof. Dr. Sagar Naik, University of Waterloo, Canada

- We live in a time of change
  - Deep fakes
  - Reputable institutions are behaving increasingly erratically
- As a consequence we are losing one of the last certainties about what is true and what is false
- Over 5 billion social media users (statistica, feb. 2025)
- Fake news can be dangerous for both democracy and the individual

**Andreas Schmidt**

Karlsruhe Institute of Technology
&
University of Applied Sciences Karlsruhe

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# Chair Introduction

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- There is now a dedicated industry for generating fake news
- Fake news plays different roles on different social networks (Stack Overflow, Coursera vs. twitter, facebook)
- **Question: What can be done, that the information in social networks would become more trustworthy?**

**Andreas Schmidt**

Karlsruhe Institute of Technology & University of Applied Sciences Karlsruhe

# Panelist Position

What can be done against fake news?

- Legal ban on fake news
- Platform operators monitor the messages and eliminate/sanction fake news (use of AI)
- Involving (independent) fact checkers
- Users are critical of sensational news and check it for accuracy before sharing it
- Integration of a trust and reputation component
- A combination of above …

**Andreas Schmidt**

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# Panelist Position

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Malcolm Crowe,
UWS UK

- There has always been fake news, propaganda, misinformation
  - There have always been attempts to restrict or license publications
  - Licensing for printers, for plays, book censorship, nihil obstat etc
  - Pressure always for democratization of means of communication
- The Internet certainly makes things worse
  - Governments try to restrict access to that too
  - Samizdats have always been more popular than official news
- Technical ways for checking authentication with live source
  - But no way to verify author of a forwarded message (even PGP)
  - Published information is always suspect, avoid single source of news

# Panelist Position

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Malcolm Crowe,
UWS UK

- Data vs Social Media:
  - Social media is for opinion, reaction, likes, advice
  - Don’t look for data in social networks
  - Some AI tools try to incorporate both – is this helpful?
- A bigger problem: fake news about new technology, science etc
  - Claims that COVID, climate change etc are hoaxes, 5G a killer
  - Claims that vitamins can cure cancer, vaccines are deadly
  - Over-hyped software (especially AI tools)
- Another problem: software generated by AI
  - Built-in bias or second-hand information, AI hallucinations
  - The software industry needs to step up, clean up its act

Fritz Laux
Reutlingen
University

- **My Position**

  - **Misinformation and Fake News are not limited to Social Media**
    - **They have been around since the beginning of mankind**
    - **But now, it have the possibility to multiply indefinitely.**

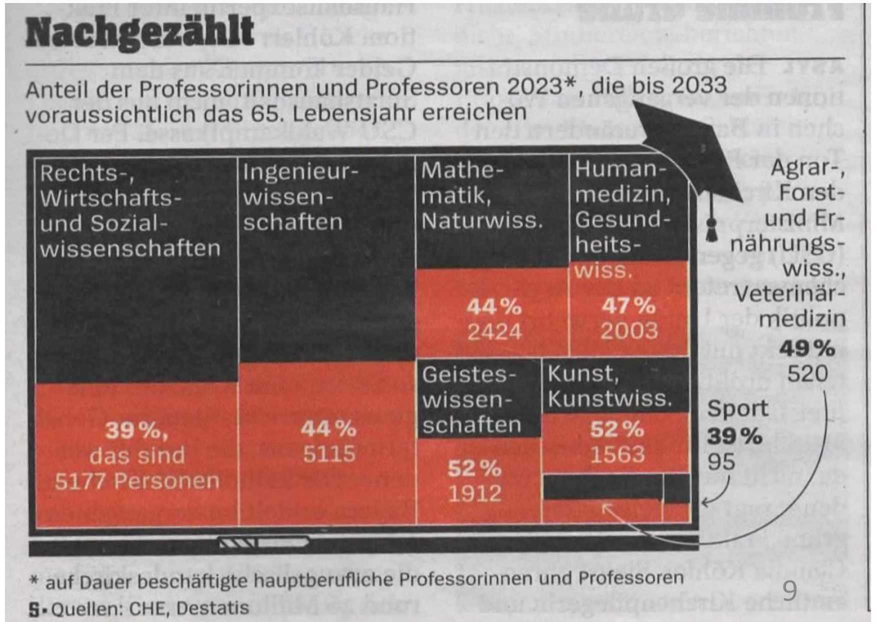
  - **Sources of different levels and varying degrees of trustworthiness**
    - **Generally, the greater the effort, the more reliable the information**
    - **But, there are exceptions → difficult to identify trustworthy information**

  - **Both statements are obvious**
    - **But, how can we identity Misinformation and Fake News?**

- **My Position**

Fritz Laux
Reutlingen
University

  - **Strategies to identify Misinformation and Fake News**
    - **Always question information → look for other sources**
    - **Use known trustworthy sources to crosscheck**
    - **Think critically about and make plausibility checks**
  - **Example (1/3)**
    - **Professors retiring in Germany from 2023 - 2033:**
      **~ 45% = 2000 /year (source: Spiegel, CHE, destatis)**
      - ✓ This is a plausible information, because
        - ✓ Reliable sources
        - ✓ Easy to verify with basic arithmetic, if you know the total number (~50 000) and avg. age 41 when becoming tenured professor (~22 years on duty)



Fritz Laux
Reutlingen
University

- My Position
  - Example: (2/3)
    - China is accused of harvesting organs from Falun Gong prisoners (China Tribunal and many others)
      - ✓ Number of organ transplants performed in China grew rapidly which corresponds with the onset of the persecution of Falun Gong
      - ✓ Verified by Kilgour-Matas-Gutmann investigation report: indirectly verified by the amount of immune suppressants used by China & known sources of organs.
      - ✓ The Wikipedia article is a good example how investigators gather and use evidences
      - ✓ 172 sources of information cited in the English version, the German version is more critical and misses neutrality
  - Example (3/3)
    - Ukraine Military Situation: number of killed soldiers on both sides
      - ✓ Dozens of reports weekly
      - ✓ Most information comes from parties involved in the war and have a clear interest in misinformation.
      - ✓ “The first victim of war is the truth” (Senator Hiram Johnson) . Targeted disinformation!
      - ✓ The losses in the Ukrainian War are NOT verifiable (at the moment)

# Panelist Position

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## ▪ Algorithmic Bias - Understanding and Mitigation

**Algorithmic bias occurs when AI systems make decisions that are systematically unfair to certain groups.**

*Examples: biased facial recognition, hiring algorithms, and loan approval systems*

- Causes:
  - **Data Bias:** Biased training data reflecting historical prejudices
  - **Model Bias:** Biases introduced during model development and training
  - **Interpretation Bias:** Misinterpretation of AI outputs by users
- Mitigation Strategies:
  - **Diverse Data Sets:** Use diverse and representative data sets
  - **Bias Audits:** Regularly audit AI systems for bias
  - **Transparency:** Ensure transparency in AI decision-making processes

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# Panelist Position



## Machine Unlearning - Enhancing AI Fairness and Compliance

- **Involves selectively removing data points from AI models to ensure data privacy and compliance.**
- **Helps AI systems "forget" specific information, improving fairness and accuracy**
- Importance:
  - **Data Privacy:** Ensures compliance with data protection regulations like GDPR
  - **Fairness:** Helps eliminate biases by removing problematic data
  - **Model Performance:** Maintains/improves AI system performance by addressing data removal requests
- Challenges:
  - **Technical Complexity:** Retraining models without specific data points can be resource-intensive
  - **Ethical Considerations:** Balancing data removal with the need for accurate and fair AI models

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# Panelist Position

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**Michiel Willocx**
DistriNet – KU Leuven
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## The need for trustworthy data sources for building ML models

- **Problem is not AI-technology but qualitative, diverse data sources**
  No shortage of AI specialists, no shortage in processing power → Shortage is in qualitative data

## Data spaces as an enabler for large-scale distributed data sources

- **Domain-specific data marketplaces enable long-standing collaborations between data owners and processors**
- **Quality seals to increase trust during negotiations →** Scope, anonymity, utility

## Anonymized data to the rescue!

- **Enable data disclosure and data collaborations,** while also preventing sensitive data leakage from ML models
- **Federated learning is often not the silver bullet →** a lot of trust required in central party and/or peers

## Are synthetic data the holy grail?

- **Alternative for statistical data-anonymization with lot of interest from industry**
- **Currently not the one-size-fits-all solution,** both in terms of data utility and data privacy

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- **Non-portable AI/ML models – Understanding and Mitigation**
  - **(Def.)** A homogeneous data source (HDS) is a data source that generates similar data points. *Ex.:* A certain geographic area.
  - **(Def.) Non-portable model:** A "non-portable" model refers to a model that cannot be (easily) transferred from one HDS to another for the same problem.

*Example:*

- Consider the **problem of modeling wildfire** for predicting **spread of fire**, **next-day fire**, **total burned areas**, …
- **HDS 1: California (2025 fire)**
- **HDS 2: Alberta, Canada (2016 Fort McMurray fire)**

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*Causes:*

- HDS have unique characteristics

*Examples of unique characteristics (Wildfire modeling)*

- Fuel type
- Weather
- Elevation

*Problem:* Model(HDS 1) cannot be effectively used in HDS 2.

Mitigation: ??

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# Resume Panel #1

- We need a detailed definition of “fake news“ - In this context, perspective and perception play a particularly important role.
- Social networks are often about opinions and less about facts
- Reliable sources are essential tools for verifying facts in social media.
- Fact checking is a complex and time-consuming process
- LLMs can probably be used to identify “fake news” (or at least support the process of fact-checking)
- “Data Spaces“: Resource for trustworthy AI models for the future
- Bias in data – Bias is reality – How can we handle it?