



PANEL #5

VALENCIA
November 2023

SocSys 2023 & SoftNet 2023

Theme

**The Challenges of Leveraging AI our
Everyday Workflow Processes**



CONTRIBUTORS

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- **Despite the remarkable progress of AI/ML in the past decade and demonstrations thereof (e.g., ChatGPT), several herculean AI/ML challenges remain to be investigated.**



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- **How significant is the Explainable AI Movement (XAI) in the leveraging of AI for everyday workflow processes (e.g., Education and Health Systems)?**
- **How have the ranking leaders in AI (legacy and emergent) dealt with the selection bias issue in AI that led to the withdrawal of major AI/ML systems from the market?**
- **How have AI/ML systems dealt with the notion of Exactitude, particularly for Decision Systems?**



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- **There is a large gap between the envisioned usage of AI by mission-critical systems and the actual implementation/operationalization of AI in today's environs.**
- **Will smaller AI teams (e.g., OpenAI) (hundreds) continue to increasingly challenge the AI armies (thousands/tens of thousands) of the larger, more established organizations in terms of applications in the marketplace?**
- **Are the current AI innovations truly disruptive so as to break the known glass ceilings or simply adding more widgets?**



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- **Keep it real when leveraging AI in our everyday processes:**
 - Many AI applications fit into an evolution of “information assistance tools”: Use of books – Use of the Internet (only science & tech) – Use of the Internet (ubiquitous) – Use of generative AI assistants (e.g. ChatGPT) – ??. (E.g. programming).
 - Other AI applications don’t seem to fit into such an evolutionary pattern (e.g. image recognition for automated cars).
 - Awareness of this can help us to predict well-known challenges, how they might be aggravated by AI evolution, and guidance of how to deal with them. And also to identify unknown challenges.
 - Need better understanding and communication of possibilities and limitations of how to make AI explainable. It’s inherent in AI (or to be precise statistical machine learning) that it is not an explicit transformation from input to output!
 - In addition to regulations, need to be able to catch out non-ethical AI systems quickly and convincingly. Can we have something like bug bounty systems for AI systems under development? (Direct translation of bug bounty systems will not be possible though.)

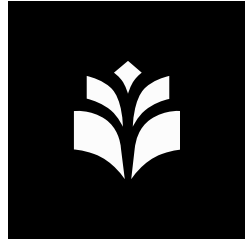


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ICSEA 2023 Panel: The Challenges of Leveraging AI our Everyday Workflow Processes

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AI increases productivity of Software Engineering (SE) teachers

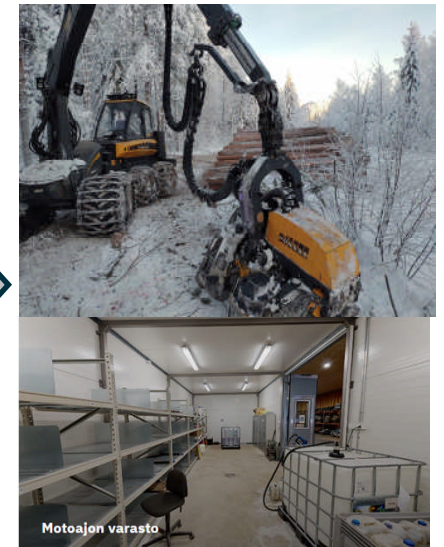
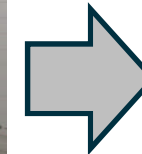
- AI platforms (Open AI) assist software engineering teachers in everyday tasks such as
 - Creating draft lecture material
 - Providing answers to book exercises
 - Establishing UML models of sample information systems
- Need for artificial virtual learning environments
- Challenges
 - Challenge 1: Lack of testing resources
 - Challenge 2: Are we killing our creativity?

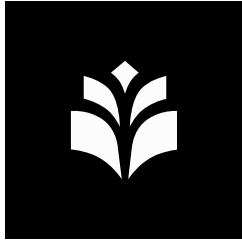


Difficulties in Establishing a Separate Software Architect Profession:

1. **Cost:** Hiring independent software architects can be expensive, especially for small and medium-sized businesses. Smaller organizations may not have the budget to engage dedicated architects.
2. **Coordination:** Integrating independent architects into the software development process may require additional coordination efforts. Ensuring effective communication and collaboration between architects and development teams can be a challenge.
3. **Expertise and Trust:** Customers must have confidence in the expertise and integrity of independent architects. Building trust and a reputation may take time, and it can be challenging to convince customers to rely on external experts.

Artificial merged outdoor and indoor virtual spaces





Ideas /questions for further research

- How Open AI can be used for analyzing time series data and does it make any sense?
- Are there big differences in outputs (analysis of time series data) produced by GPT 3.5 vs GPT 4?
- Can we detect anomalies in time series data with Open AI and potential explanation for anomalies?

LoraWAN
Sensor Module
for
Liquid Level
Monitoring





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Generative AI helps solving single **workflow (WF) tasks**

- well-received tool for all kinds of **(creative) tasks**
- to **assist** (“co-pilot”) agents or to **fully automate** tasks

AI optimizes **quality assurance of artifacts**

- suggestions for improvement or **quality gates**
- assistance to explicit QA tasks / **sign-offs**
- consideration of **legal regulations** of certain industries
- reduction the overhead of internal **compliance checks**



Hans-Werner Sehring
NORDAKADEMIE gAG



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AI helps designing **best practice WF plans** even to those without specific process engineering expertise

- Generative AI reuse **knowledge in the field**, generate checklists
- General AI: check WF plan against **best practices in the field**
- derive WF plans from **existing ad-hoc workflows**
- identify process **risks** and propose countermeasures
- **simulate WFs** before putting them into practice
- derive **RAM/RACI matrix**



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- **In Forensics: AI can help to overcome technology- and AI-induced problems**
 - Forensic communication data is of enormous value for criminal investigations; our daily lives are stored in every single mobile device
 - Reading and analyzing this amount of data is impossible without the help of AI
 - AI can help to identify Bots spread fake news or hate speech
 - AI is successful in predicting certain types of crime and can help to take appropriate preventive measures.



Prof. Dr. Michael Spranger
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- **But AI is not trustworthy per se**

- A study from 2023 shows: Only 28% of people in the US, Canada, Germany, the UK and Australia rely on information provided by AI.
- Deep fakes shake trust in digital media and henceforth politics and economy - what is real and what is not?
- AI in medicine: Predominantly incorrectly designed data and studies raise doubts about the trustworthiness of AI.
- Some serious accidents raise doubts about driver assistance systems and autonomously driving cars.
- ChatGPT invented sexual harassment and named a real law prof as the accused.
- ChatGPT gives wrong answers to programming questions more than 50% of the time.



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- Regulation would be desirable.
- In a globally networked world with massive dependencies, this seems difficult to realize.
- Studies show: The so-called "digital natives" are not that much more advanced in their use of digital technologies and artificial intelligence than the generations before them.
- Education and awareness-raising can be the key to dealing with AI technologies.



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Panelist/Chair Position

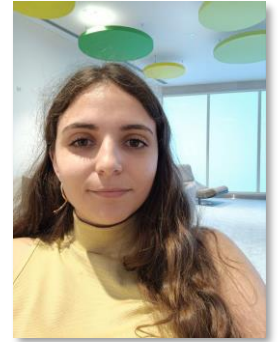
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■ Control or grow at the same time

- The development of AI is crucial for the technological growth of society.
- We try to control this growth, or we want to control it, as far as possible.
- We must have the capacity to grow with it in order to be able to face challenges and threats.
- AI can be used to do bad things; we need to create tools to help us detect what is real from what is fake.

■ AI as a support, not as a replacement

- Healthcare, clinicians must not be replaced. AI lacks ethics.
- AI is learning but can fail.



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