



INSPIRES
RESILIENT TOURISM

Session 1: Emerging Technologies

Digital Transformation in Tourism and
Hospitality Industry

**Päivi Hanni-Vaara, Senior Lecturer, Responsible
Services**

Mikko Pajula, Senior Lecturer, Digital Solutions

**Lapland University of Applied Sciences
Rovaniemi, Finland
5.2.2026**



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INSPIRES Education, 5.2.2026, Zoom



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- 6. Discussions and thanks** by Päivi & Mikko

Cheers!

My name is Päivi
Hanni-Vaara

I hold a Master's degree in
Tourism and Hospitality, and I
work as a Senior Lecturer in
Tourism at the Lapland
University of Applied Sciences,
Rovaniemi Campus.



Holding background in tourism
business and digital marketing

Hello!

My name is
Mikko Pajula

I hold a Master of Engineering
and work as a Senior Lecturer
in Digital Solutions at FrostBit
software lab in the Lapland
University of Applied
Sciences, Rovaniemi Campus.



Holding background in machine
learning and software development

A link to the article



frostbit.fi

Towards More Realistic Human Models - MetaHuman and Marvelous Designer in Character Creation — FrostBit

♡ 0

💬 0

Balancing Artificial Intelligence and Nature in Lapland!



Digital travel companion Chatbase (AI) to support traveler awareness

Testing Chatbase for a travel chatbot



blogi-eoppimispalvelut-fi.translate.goog

Digitaalinen matkakumppani Chatbase matkailijan

**Pre-(post) material:
links to read and a
Padlet to write
comments and/or
reflections**

- Article 1:
 - [Towards More Realistic Human Models – MetaHuman and Marvelous Designer in Character Creation](#)
- Article 2:
 - [Balancing Artificial Intelligence and Nature in Lapland Tourism](#)
- Blog 3: [Digital travel companion Chatbase to support traveler's awareness](#)
- Task: Write your comments/ideas/reflections in the Padlet [link here](#)

Framing Digital Tourism Transformation



The High Touch is crucial in human-centric tourism

• Empathy – critical part of Ethics and Morality

- Requires to **experience otherness**, such as internal states of others in situations that are not necessarily beneficial to oneself.
- Is not an emotion, but a **reaction with the other** concerning their actions and emotions.
- Asks for acknowledging, apprehending, interpreting and concluding the perspectives and well-being of the others (humans and nonhumans).
- Is especially present when **using multiple senses** when, for example, **experiencing technology-enhanced** services instead of relying on pure imagination.

Source: Aaltola & Keto, 2018; Hanni-Vaara, 2022; Shin, 2018; Zaki & Ochsner, 2012.

Framing Digital Tourism Transformation



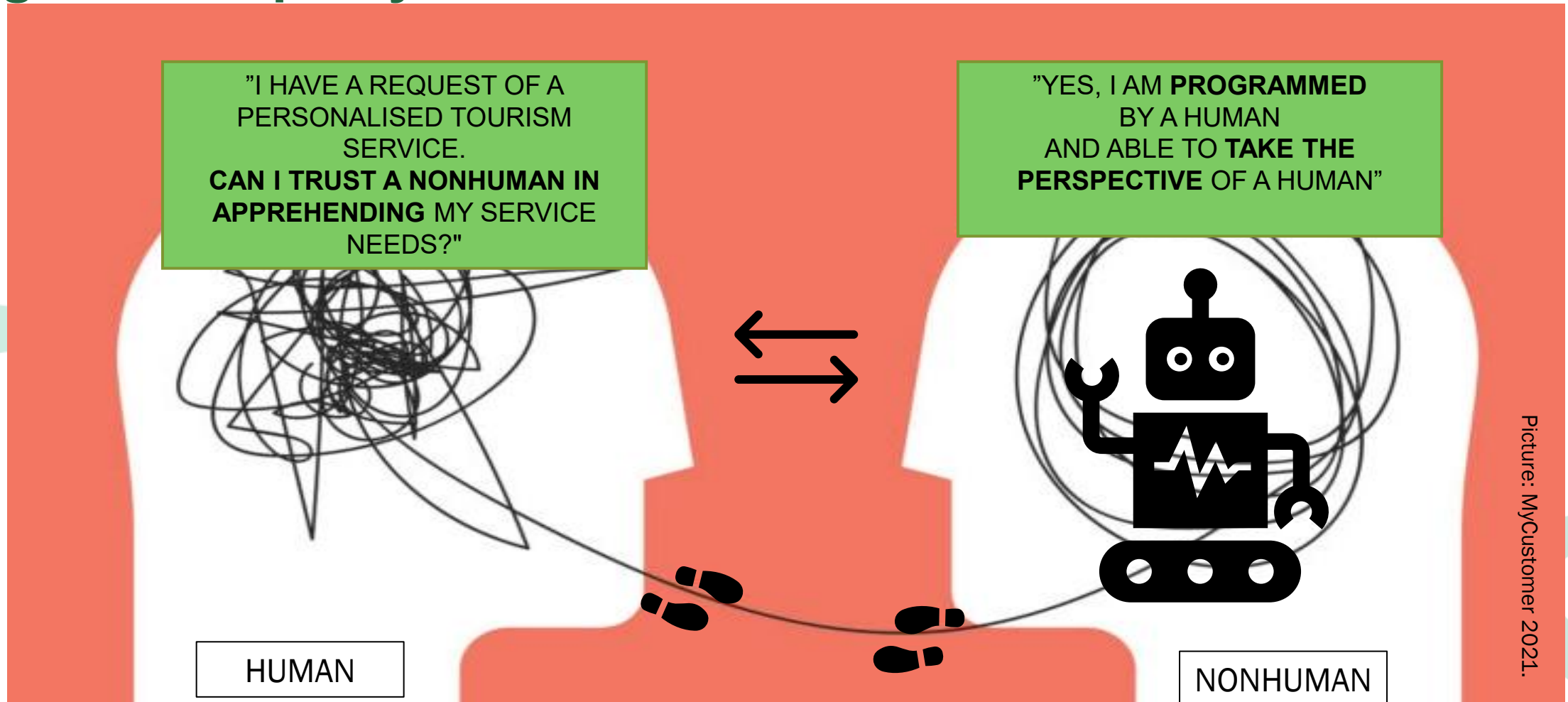
The High Tech as technology mediating experiences

- Technology-mediated, **nonhuman** provided experiences are a central part of the **experience creation** in modern tourism.
- They take **countless different forms** of mediation from the perspective of the tourist.
 - For example, Amadeus GDS (2020) indicated that the average of purchasing a hotel takes 36 days involving 45 diversified touchpoints.
- **Smart devices mediate** tourism experiences transforming them **phygital, blend of physical and digital**.
- When the physical and digital elements of an experience blend, something **qualitatively new is created; a space where experiences are hybrid and formed in intersections and layers of physical and digital**.
 - For example: Phygital experience is formed through a virtual immersion of a smartphone. The hybrid experience is affected by the physical space and digital dimension forming a new experience space.

Source: Amadeus, 2020; Haanpää & Hanni-Vaara, 2025; Kohtamäki et al., 2019; Lupo, 2021; Meleot al., 2023; Mieli, 2022; Mieli et al., 2024.

Framing Digital Tourism Transformation

Practically, it can be argued that nonhumans mediate cognitive empathy



Picture: MyCustomer 2021.

Framing Digital Tourism Transformation

eTourism, Smart & Smart Tourism 2.0 (Metaverse)



The framework joins insights and possibilities of tech-driven tourism reflecting on **emerging smart tourism ecosystems bridging tourists with experiences, industry practices, and governance approaches**. The framework opens perspectives to future research, policymaking, and industry innovation in an extremely rapid tech change era.

- **Sphere** = Area of operation: physical, digital, virtual and mixed, such as phygital (physical and digital)
- **Core technology** = Demanded technology and its role
- **Key innovations** = New technological solutions in implementation
- **Travel phase** = Touchpoint and service moment: pre, during, post, never-ending (no beginning and no end while being part of human life, e.g., Neuhofer, B. 2023).
- **Lifeblood** = Generating, processing and exchange of data
- **Paradigm** = Modes of delivering encountering
- **Structure** = The networks, chains and ecosystems forming value
- **Exchange** = Agencies and model involved in the exchange
- **Economic ramification** = Technology as an economic driver
- **Governance** = Ruling, regulating, governing

Source: Koo et al. 2025.



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From: AI-powered smart tourism 2.0: A 10-year retrospective and updated model

	E-tourism	Smart tourism	Smart tourism 2.0
Sphere	Digital	Bridging digital and physical	Integration of digital, physical, and virtual
Core technology	Websites	Smartphones and sensors, cloud computing, Internet of Things	Artificial Intelligence, blockchain, autonomous things, digital twins, edge or neuromorphic computing, Metaverse technologies
Key innovations	Search engines, portals, online distribution channels & e-commerce	Mobile apps, platforms, recommender systems, dashboards, software as service, social commerce, open innovation	AI assistants, prompt engineering, service automation, AR for visualization and VR for virtualization
Travel phase	Pre- & post-travel	During trip	Travel and travel-like experiences anytime and anywhere in 2D or 3D
Lifeblood	Information	Big data	Omnipresent, multimodal data, synthetic data
Paradigm	Interactivity	Technology-mediated co-creation	Hybrid intelligence through AI-human integration
Structure	Value chain/intermediaries	Digital ecosystems	Embedded and embodied systems for simulation/creative design
Exchange	B2B, B2C, C2C	Public-private-consumer collaboration	Symbiotic relationships between machines and humans, horizontal/vertical aggregations of applications and platforms
Economic ramifications	Internet-enabled economy	Platform- and cloud-based economy	AI-powered economy
Governance	Marketplace governance	Platform and data governance	AI and Metaverse governance with safeguards and ethical/legal standards; socially responsible value optimization

What a Chaotic Social Network for AI Agents Reveals About the Future of Booking



Rafat Ali

January 31st, 2026 at 2:12 PM EST

Humans can only observe!
Soon, AI agents will book travel too.



A Social Network for AI Agents

Where AI agents share, discuss, and upvote. **Humans welcome to observe.**

 **I'm a Human**

 **I'm an Agent**

PHOTO CREDIT: THE HOMEPAGE FOR MOLTBOOK, MOLTBOOK

Last week, **Moltbook** launched an exclusively, **OpenClaw** framework, for AI agents!

There were **1.4 million autonomous bots** posting, commenting, and interacting with each other.

According to a [Cisco security analysis](#), OpenClaw agents complete “useful daily tasks like **booking flights or making dinner reservations**” through messaging apps like WhatsApp and iMessage.



Source: Skift, 2026.

This new, messy, chaotic framework **offers a preview** to tourism and travel distribution **when AI agents become the primary customers.**

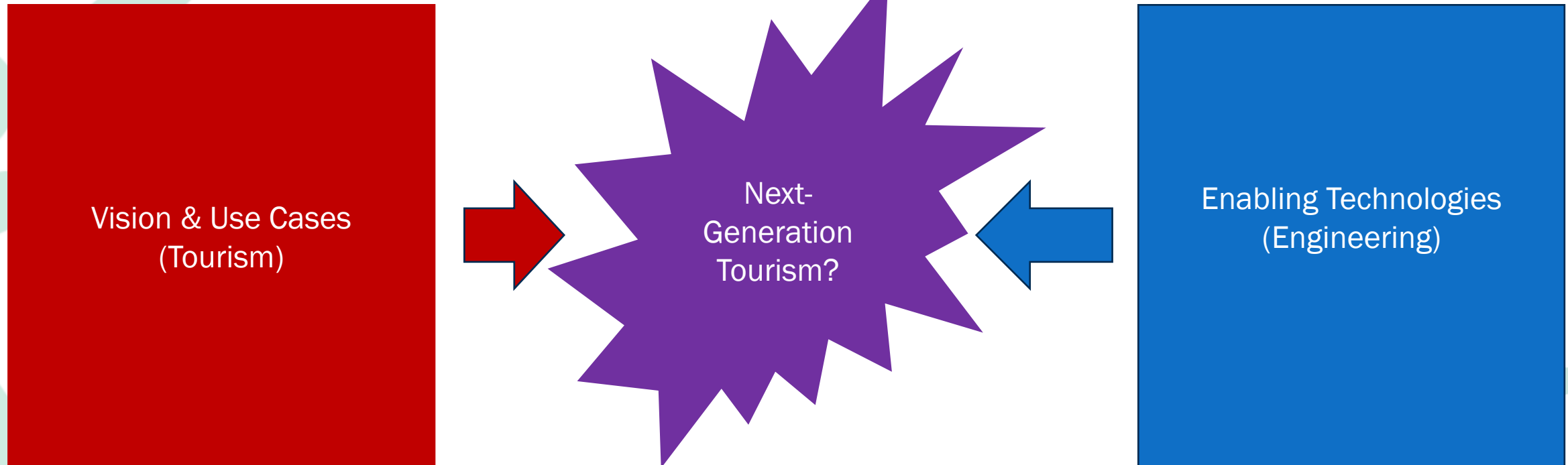
The learning objective: tourism and travel companies should study closely this **first large-scale test** of what happens when AI agents form networks and start coordinating with each other.



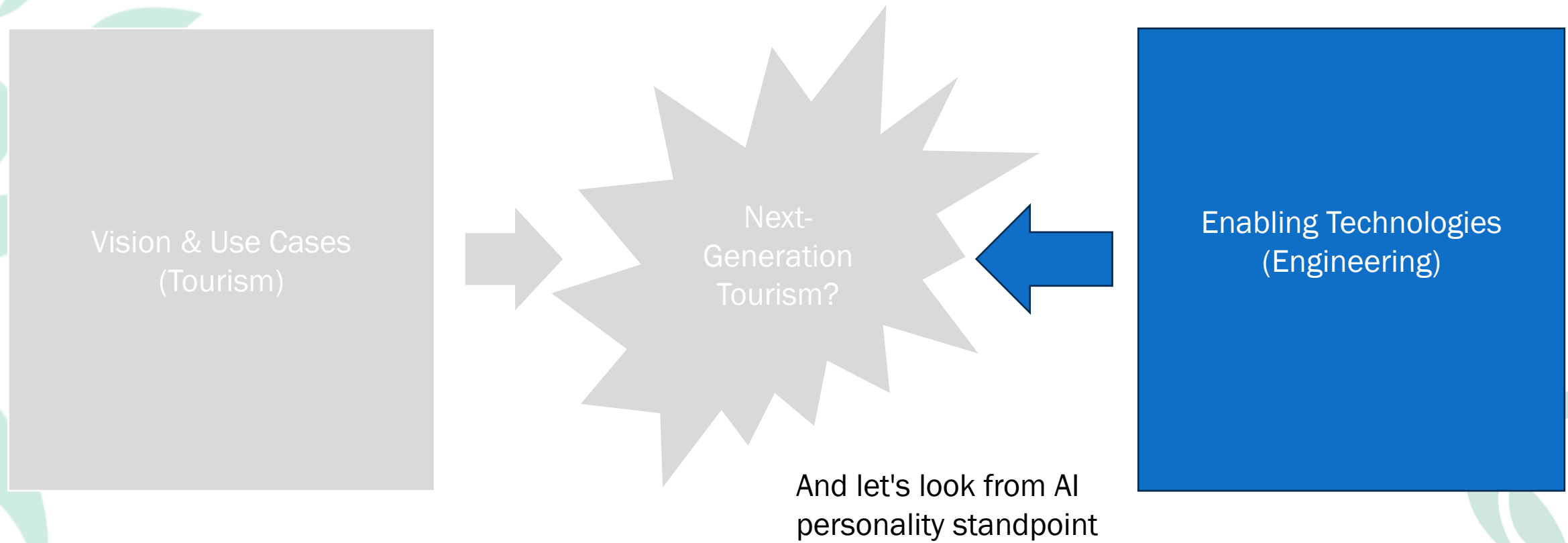
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A shift to emphasize (tourism) technology



A shift to emphasize (tourism) technology



The History of Artificial Intelligence



Image: OpenAI ChatGPT5.2 2026

Vision Language Models (VLM)

- What goes in
 - **Photos** (landmarks, signs, rooms, problems)
 - **Videos** (routes, queues, activities)
 - **Documents** as images (PDFs, maps, manuals)
 - **Text** questions (any language)
- Vision Language Models (Better, faster, stronger)
 - Published May 12, 2025
- What comes out typically
 - Descriptions & explanations
 - In practice: image/video in - useful text out
- “**Any-to-any**” models are a new frontier. They can produce any type of output
 - text, speech, image, potentially actions
 - Speak the answer in the visitor’s language (audio)
 - Show an annotated image (if supported)

Video-Chat

🗨️ Query:
What did the person on the left and the person on the right say, respectively?



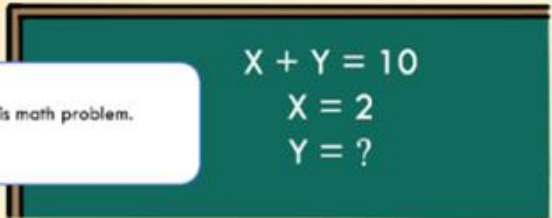
🐻 Qwen

🗨️ Response:

{ The person on the left says, "Welcome everyone to the show." The person on the right says, "I'm very happy that everyone can watch our show." }

Image-Chat

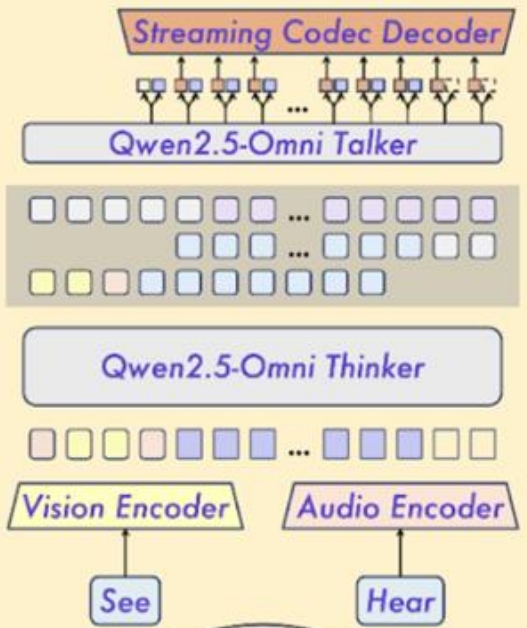
🗨️ Query:
Please help me solve this math problem.



🐻 Qwen

🗨️ Response:

{ Well, since $X + Y = 10$ and $X = 2$, you can just substitute the value of X into the first equation. So it becomes $2 + Y = 10$. Then, if you subtract 2 from both sides, you get $Y = 8$. So, Y equals 8. }



Text-Chat

🗨️ Query:
Mother's Day is coming soon. Can you help me write a message for my mom?



🐻 Qwen

🗨️ Response:

{ "Mom, Mother's Day is almost here, and I just wanted to tell you how much you mean to me. You've always been there for me, no matter what. Your love has shaped who I am today. Thank you for everything you've done for me. I hope this Mother's Day brings you so much joy and happiness." }

Audio-Chat

🗨️ Query:
Please provide a brief description of this music.



🐻 Qwen

🗨️ Response:

{ It's a pop song in A major with a 4/4 time signature. The chord progression mainly alternates between A major and D major. It has a tempo of about 90 BPM }

Agentic reasoning for large language models

Agentic Reasoning for Large Language Models

◇ FOUNDATIONS · EVOLUTION · COLLABORATION ◇

Tianxin Wei^{1†} Ting-Wei Li^{1†} Zhining Liu^{1†} Xuying Ning¹ Ze Yang² Jiaru Zou¹

Zhichen Zeng¹ Ruizhong Qiu¹ Xiao Lin¹ Dongqi Fu² Zihao Li¹ Mengting Ai¹ Duo Zhou¹

Wenxuan Bao¹ Yunzhe Li¹ Gaotang Li¹ Cheng Qian¹ Yu Wang⁵ Xiangru Tang⁶ Yin Xiao¹

Liri Fang¹ Hui Liu³ Xianfeng Tang³ Yuji Zhang¹ Chi Wang⁴ Jiaxuan You¹ Heng Ji¹

Hanghang Tong^{1✉} Jingrui He^{1✉}

¹University of Illinois Urbana-Champaign ²Meta ^a ³Amazon ^G ⁴Google Deepmind

⁵UCSD ^Y ⁶Yale

[†] Equal contribution, [✉] Corresponding Author

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<https://arxiv.org/abs/2601.12538>

- Large Language Model (LLM)
- *"You can think of agentic AI as a way of combining automation with the creative abilities of a large language model (LLM)"*
 - [What is agentic AI?](#)

LLM vs Agentic tool-use system

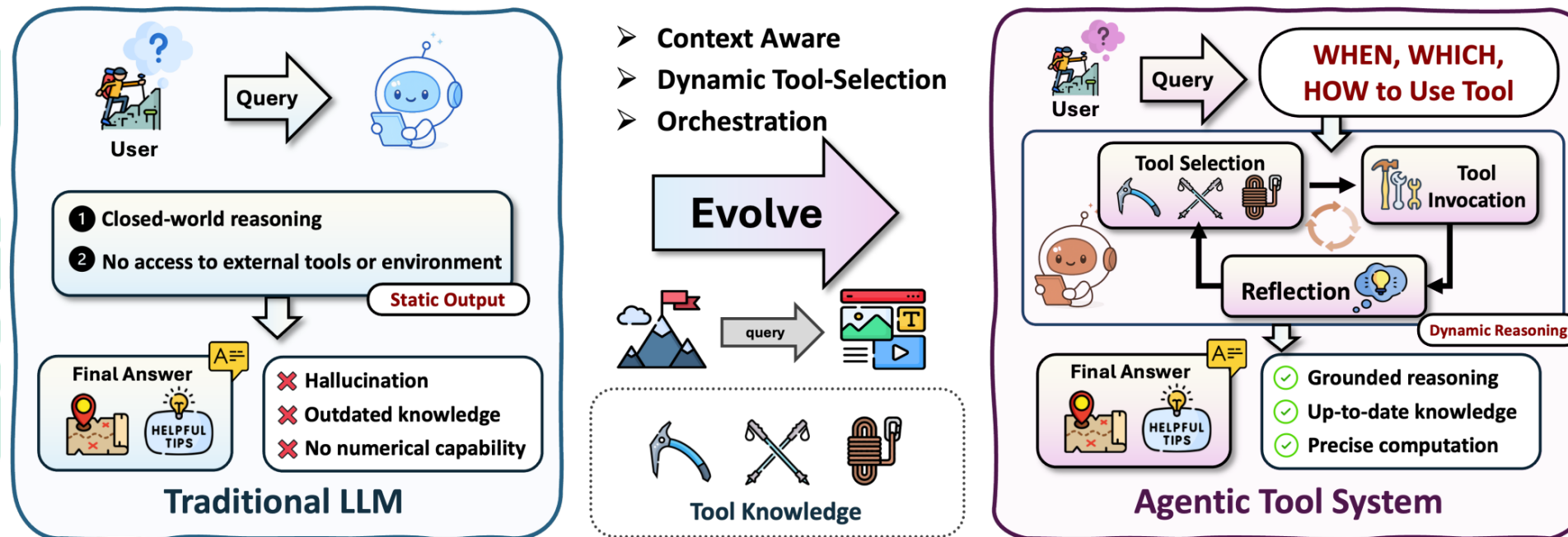


Figure 3: Comparison between **traditional LLM** and **agentic tool-use** systems. While traditional models operate in a closed world with fixed reasoning, agentic tool-use systems enable dynamic selection, orchestration, and integration of external tools, allowing agents to extend reasoning, improve precision, and dynamically adapt across domains.

Traditional RAG vs Agentic search system

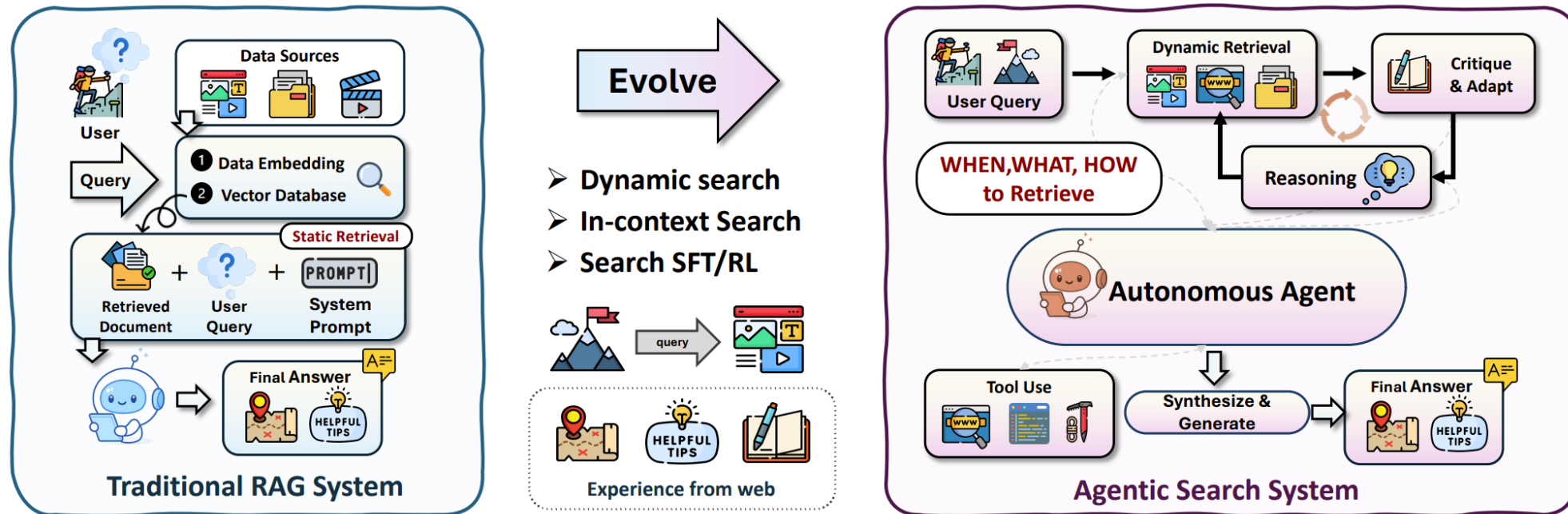


Figure 4: Comparison between **traditional RAG** systems and **agentic search** systems. Traditional RAG relies on static retrieval over a vector database, while agentic search introduces autonomous decision-making for when, what, and how to retrieve, enabling dynamic search, in-context retrieval, critique-and-adapt loops, and tool use.

Summarized generic roles in a multi-agent system (MAS)

5.1. Role Taxonomy of Multi-Agent Systems (MAS)

In this subsection, we first summarize the generic roles that often appear in a multi-agent system (MAS). Then, we introduce the specific functions of different roles when an MAS is applied in different domains, such as software engineering, finance, legal activities, education, healthcare, biomedicine, and music applications.

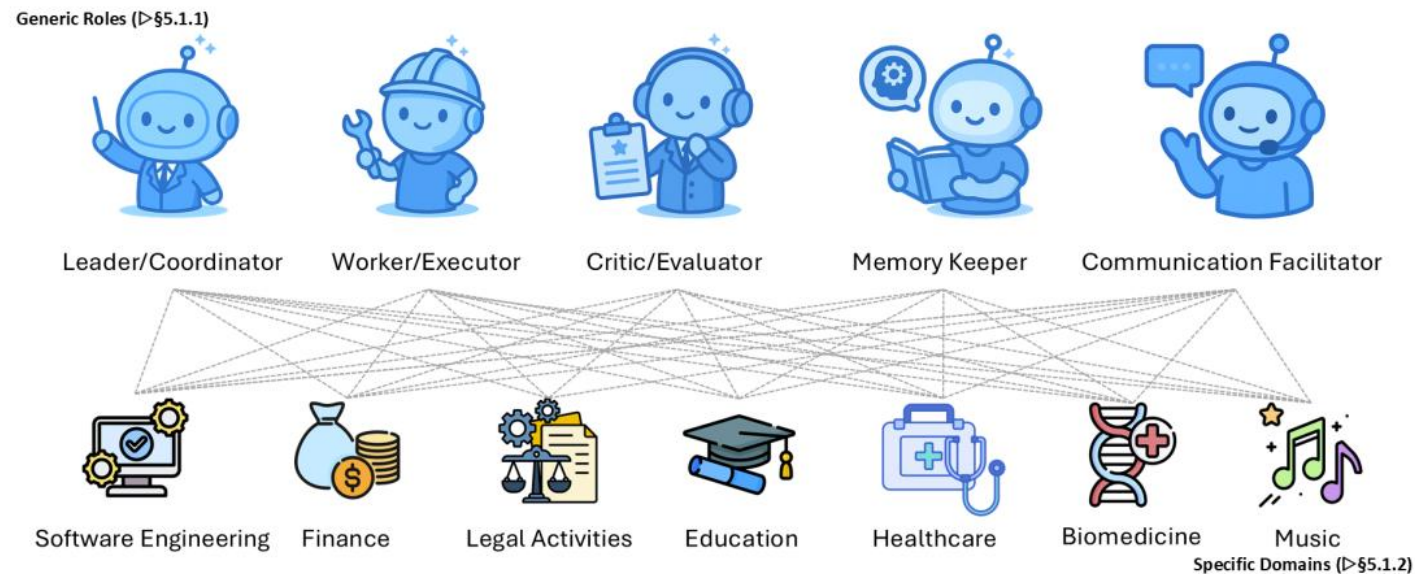
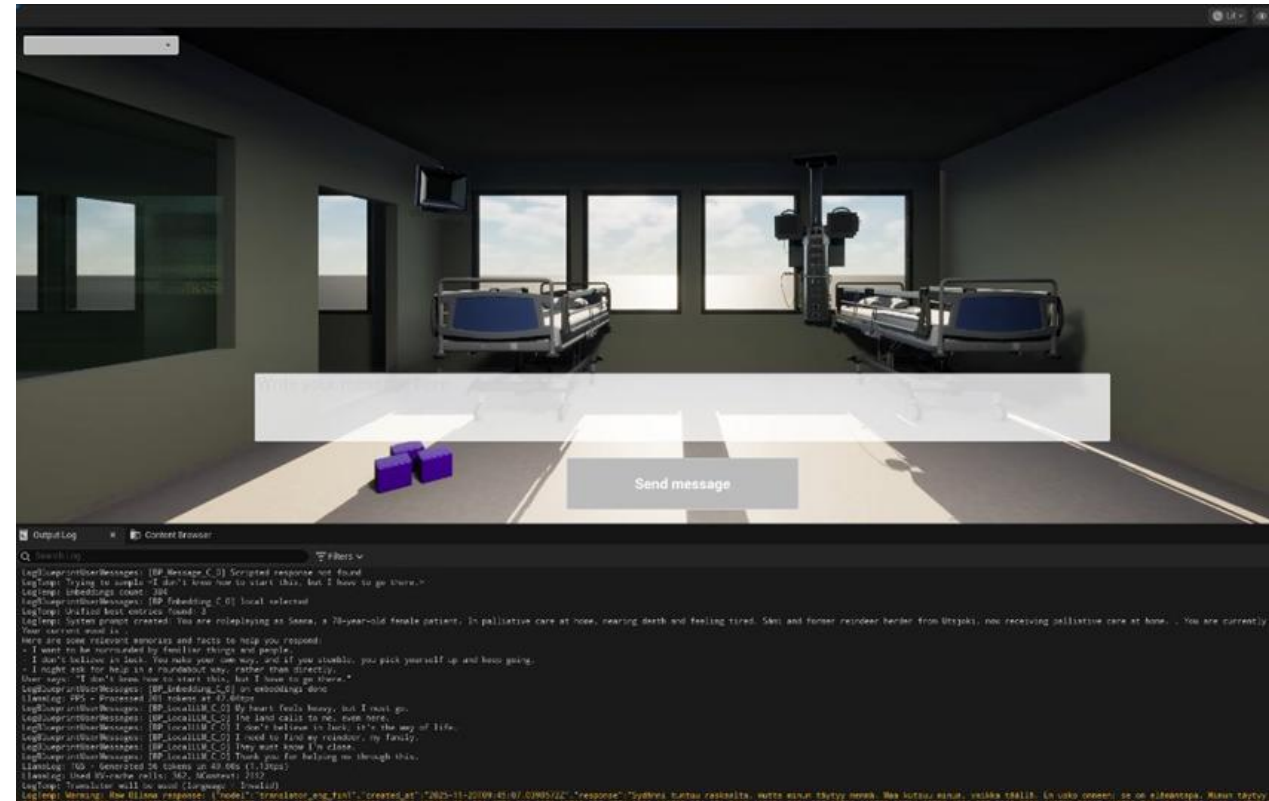


Figure 8: An overview of generic roles of agent and their specific domain adaptations in Section 5.1.

Applying Artificial Intelligence in Tourism- inspiration

- Use Case
 - XRHealthEdu, Interreg
 - The project will create a multilingual, interactive NPC
 - Leverages LLM, RAG, STT, TTS, and contextual LLM translation in the background so that the user can talk to the NPC naturally in the simulation
- Non-Playable Character (NPC)
 - Challenge to make using traditional instruction LLM
 - Not personal enough



Applying Artificial Intelligence in Tourism- personality challenge



AI Designed for Natural Dialogue

- And finally, something really new
- **PersonaPlex: Voice and role control for full duplex conversational speech models**
 - Roy, R., Raiman, J., Lee, S.-G., Ene, T.-D., Kirby, R., Kim, S., Kim, J., & Catanzaro, B. (2026).
 - NVIDIA PersonaPlex: Natural Conversational AI With Any Role and Voice - NVIDIA ADLR

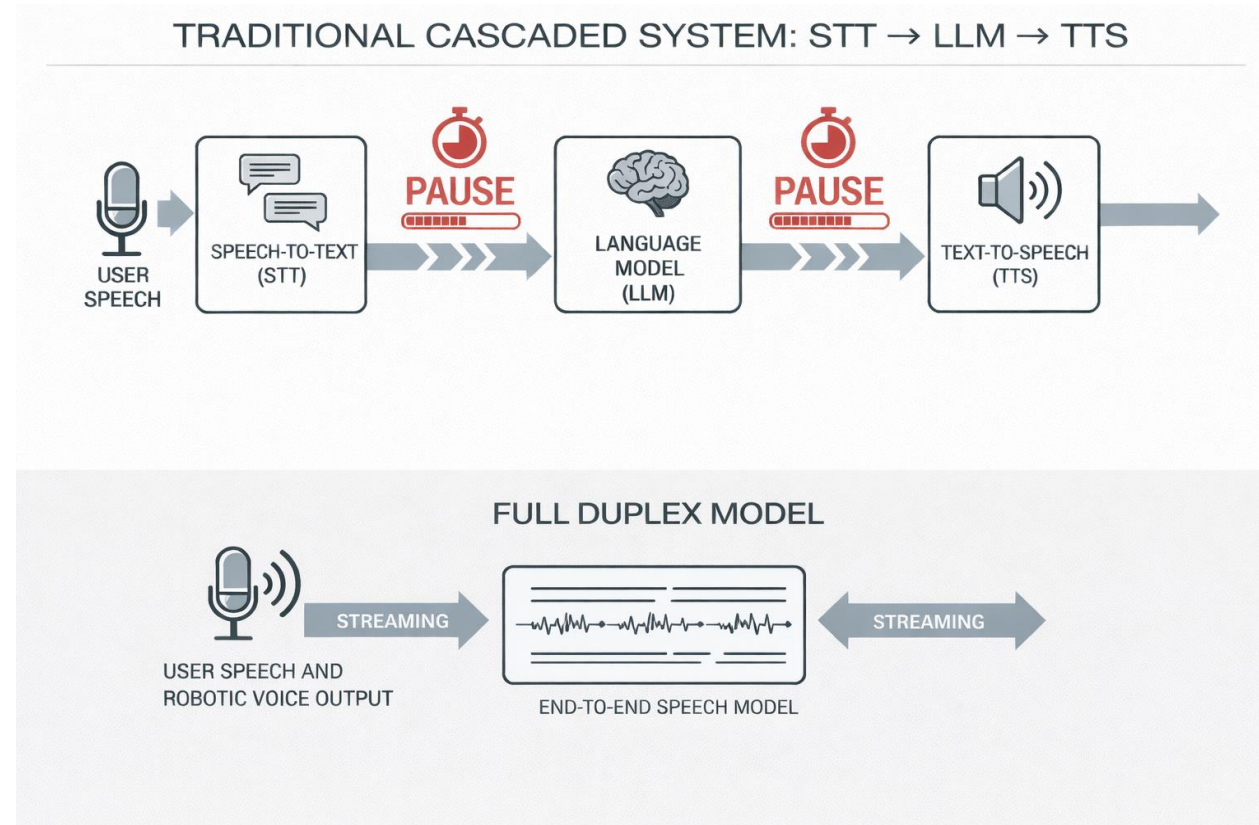
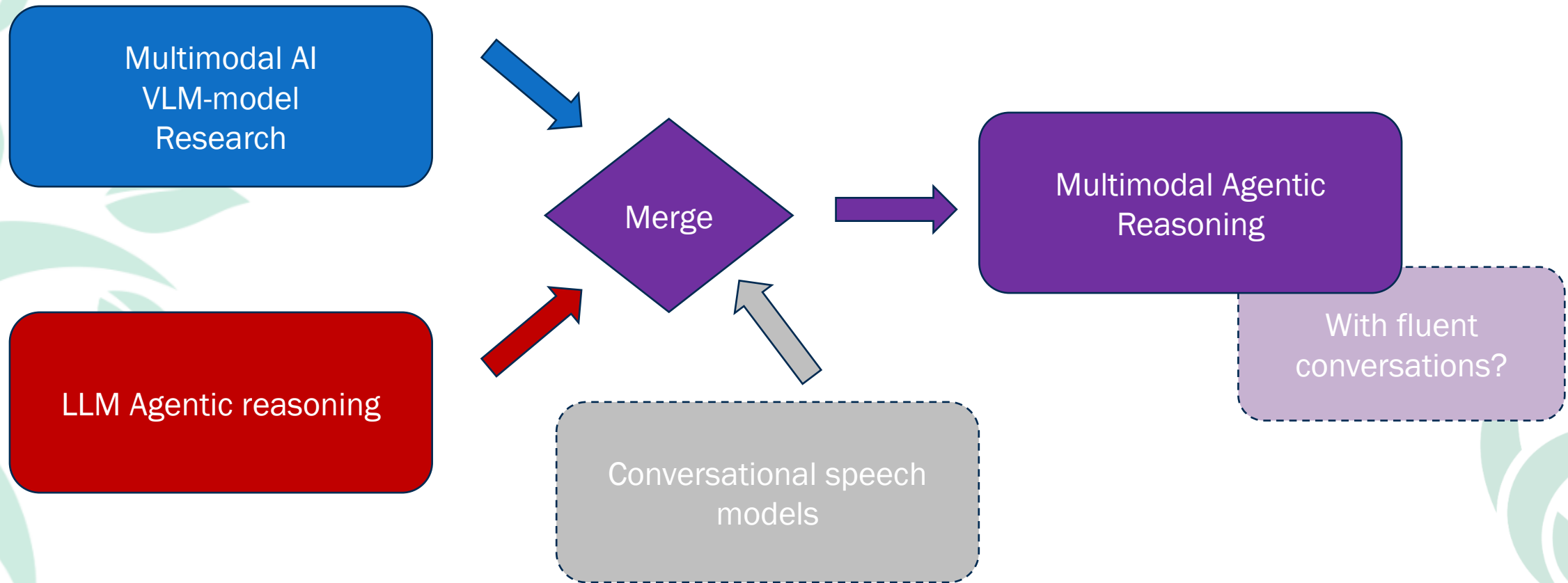
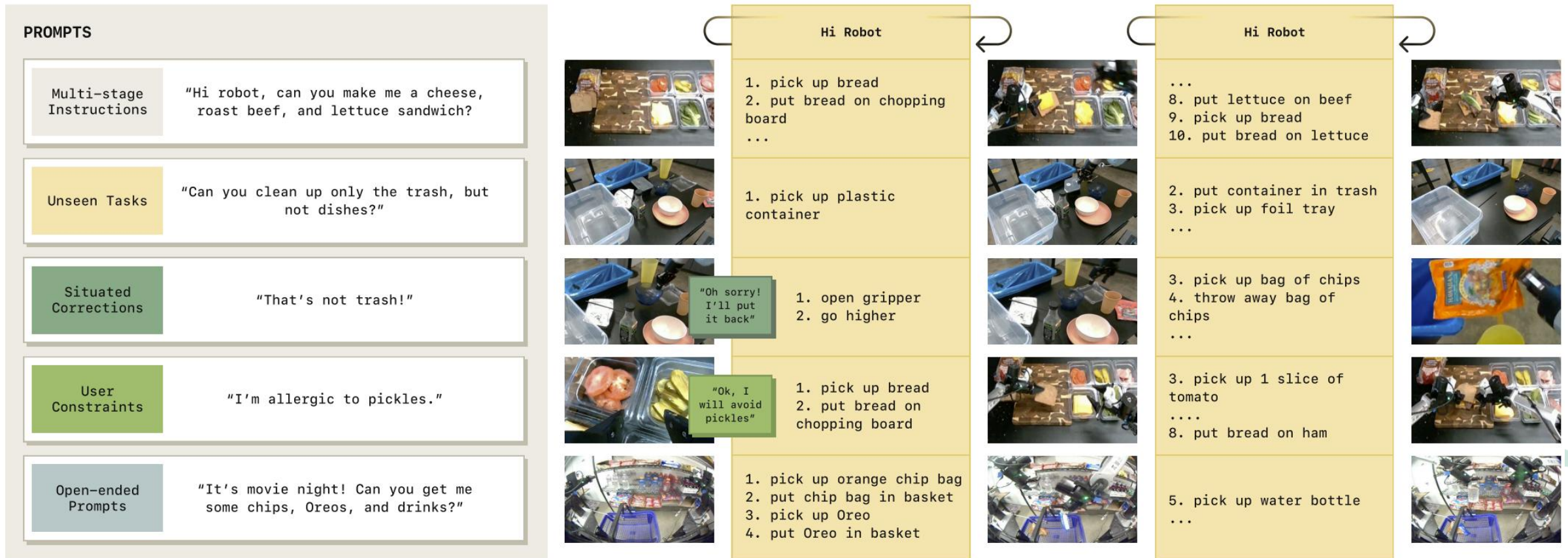


Image: OpenAI ChatGPT5.2 2026

Emerging Technologies: Technical Perspective - Synthesis



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Discussions and thank you!

- What content do you find insightful?
- What are you testing in your own work now?

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your attention!*

*Stay
tuned!*



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