

The logo for INA IL, featuring the text "INA IL" in white, bold, sans-serif capital letters on a dark blue rectangular background.

INA IL

AI Literacy as Democratic Education:

Evidence from an INA IL pilot study

Narrative-Based Framework for AI Literacy

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Introduction and relevance of the topic

Placement in the scientific debate

Societal Restructuring: Artificial intelligence (AI) is restructuring key social institutions: education, labor, governance, health, and security.

Inequality Amplification: Uneven AI literacy may generate new asymmetries of knowledge, power, and agency.

Key concepts

AI Literacy: Understanding and consciously using AI systems in everyday life.

Social & institutional relevance

AI literacy promotes inclusion, fraud prevention, institutional efficiency, and creative innovation

A cross-disciplinary perspective: Sociology, Pedagogy, Psychology, Economics, and Technology Studies

Theoretical Background: *AI Literacy Education*

Narrative Structure supports:

- meaning-making,
 - emotional engagement,
 - and memory organization
- ← Landrum et al., 2019

K-12 prefer:

- project-based approach,
 - human-computer interaction,
 - play-based active learning
- ← Yim et al. 2025.

Older Adults need for

- illustrations and examples
 - Interactive learning process
 - learn by doing
- Tang, et al., 2025 →

Our framework integrates narrative pedagogy with empirically identified needs in adult and Kid AI literacy education

Research questions and objectives

Theoretical approach

Research Question (TRQ)

How can cognitive barriers to understanding basic AI knowledge be reduced?

Objective

a) Cognitive perspective:

To reduce mental effort in learning complex concepts.

b) Psychological perspective:

Transforming fear of AI into curiosity toward AI.

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Applied approach

Research Question (ARQ)

How can complex AI concepts be made accessible to non-technical audiences?

Objective

To develop a narrative framework that connects biological intelligence to artificial neural networks, using analogies, self-explaining images, and playful interactions.

Methodology: *5 Key points*

The intervention was structured around five pedagogical components:

1. ***Narrative Construction of AI***: A structured narrative progression from biological intelligence to artificial neural networks to Large Language Models (LLMs)

Methodology: *5 Key points*

The intervention was structured around five pedagogical components:

- 1. *Narrative Construction of AI*:** A structured narrative progression from biological intelligence to artificial neural networks to Large Language Models (LLMs).
- 2. *Cognitive Analogy*:** Linking biological and artificial neural networks through everyday analogies.

Methodology: *5 Key points*

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2. ***Cognitive Analogy***: Linking biological and artificial neural networks through everyday analogies.
3. ***Self-explaining images***: visualizing complex activities into familiar framework

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3. ***Self-explaining images***: visualizing complex activities into familiar framework
4. ***Playful Sentence-Completion Exercise***: Engaging participants in next-word prediction to mirror LLM next-token probabilistic processing.

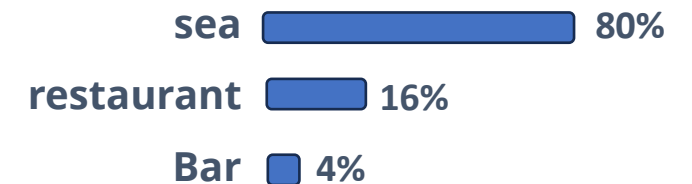
“Tomorrow we’ll go to the ...”

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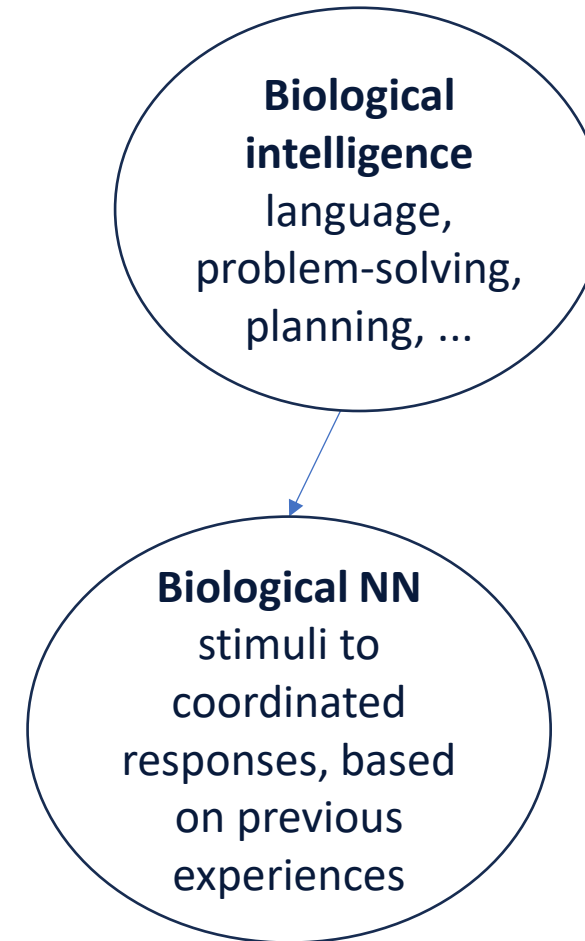
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“Tomorrow we’ll go to the ...”

Word	Probability
sea	80%
restaurant	16%
Bar	4%
5. ***Reflexive AI Mediation***: Using AI tools to summarize theory in multiple formats.

Methodology: *narrative model*

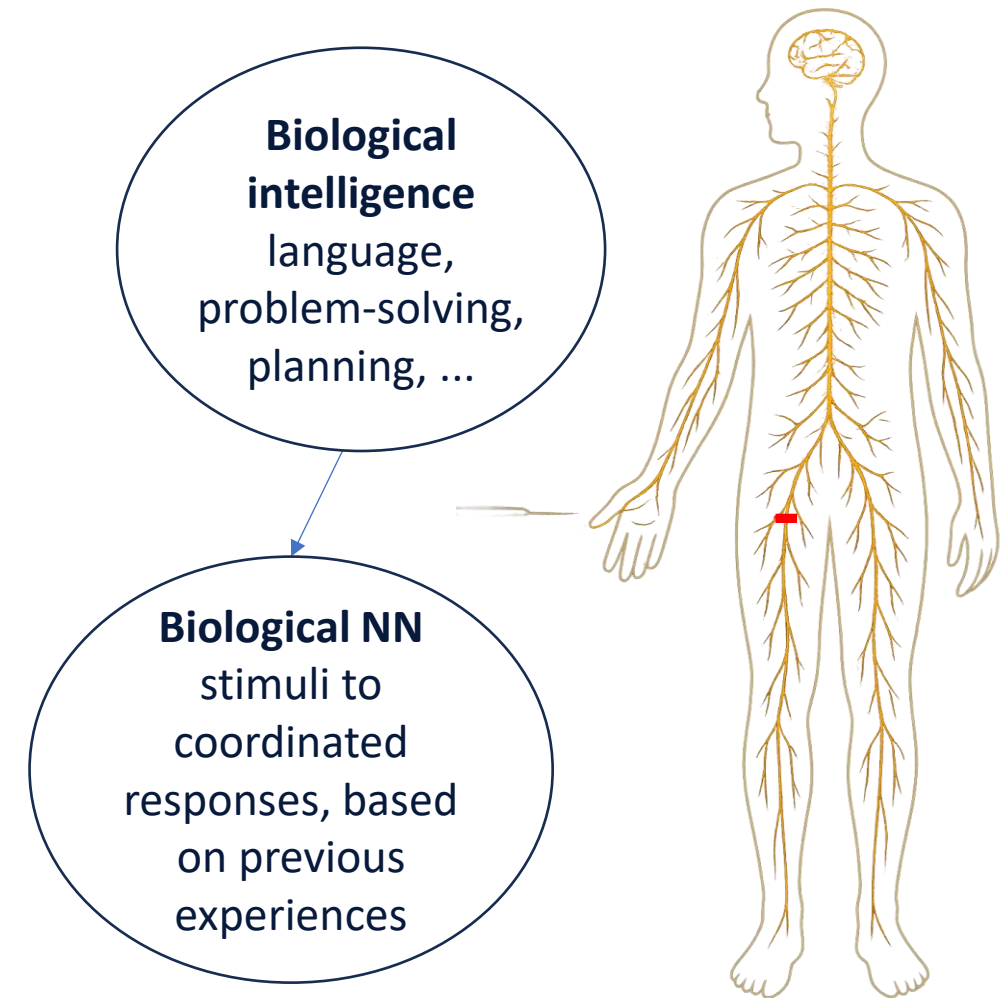


Methodology: *narrative model*

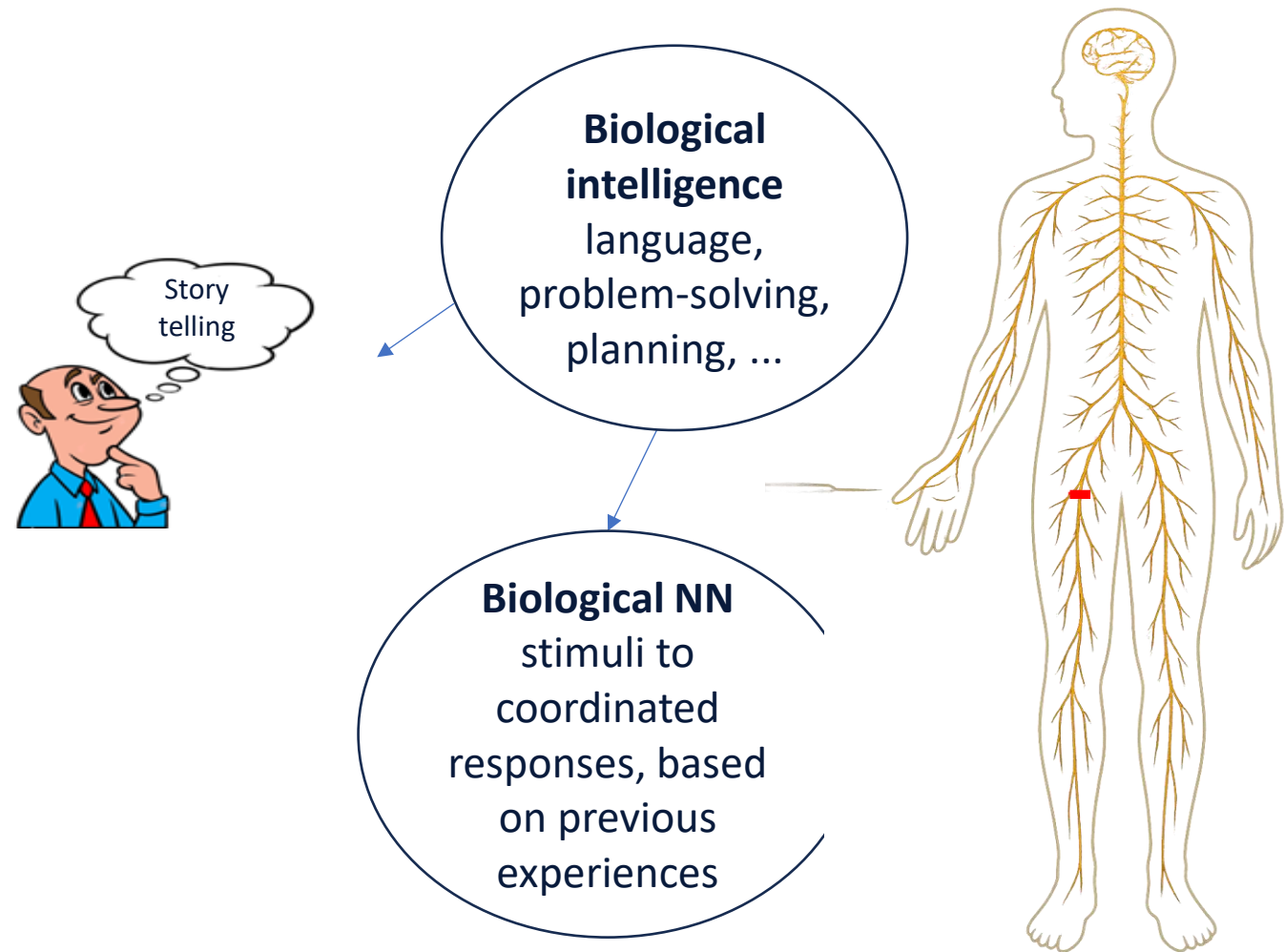


Methodology: *narrative model*

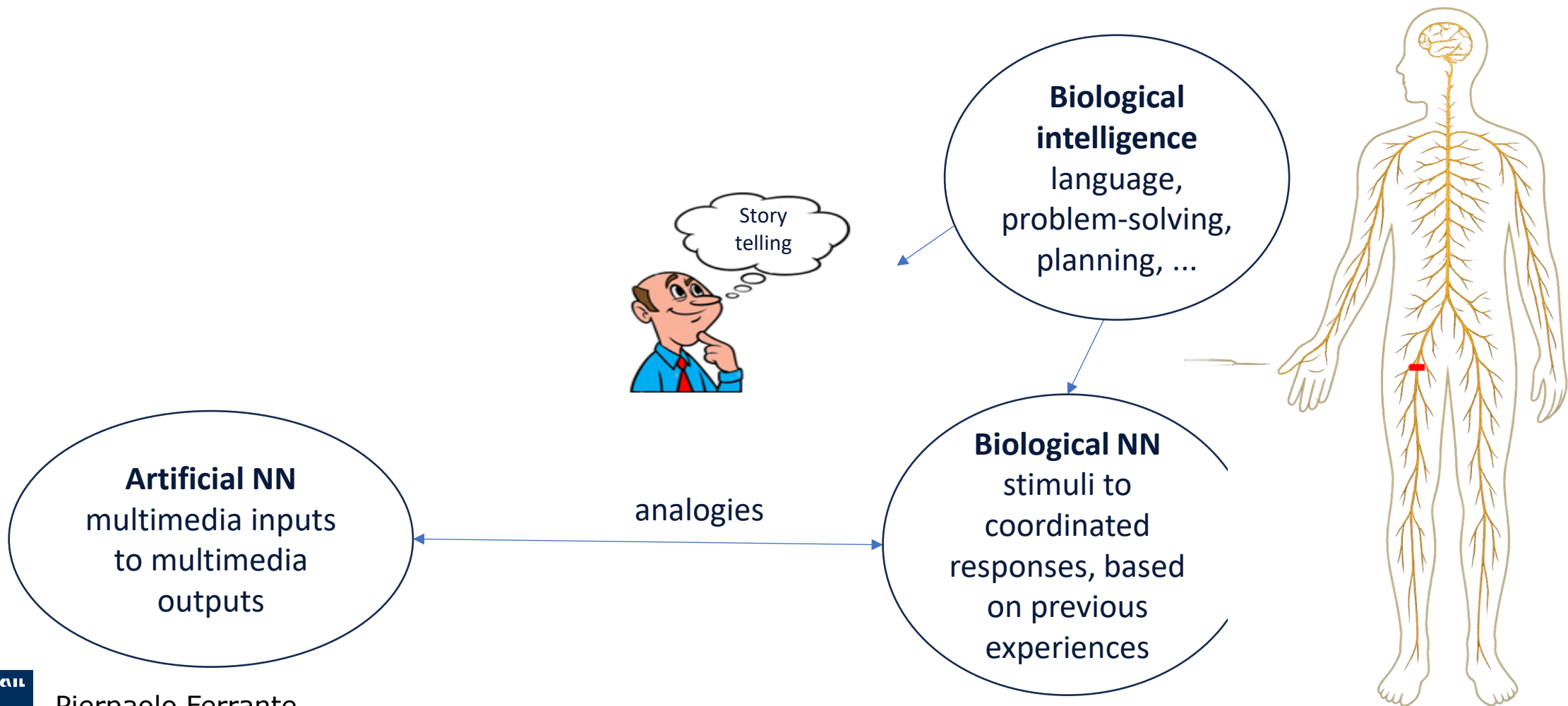
**Cut on the
right leg**



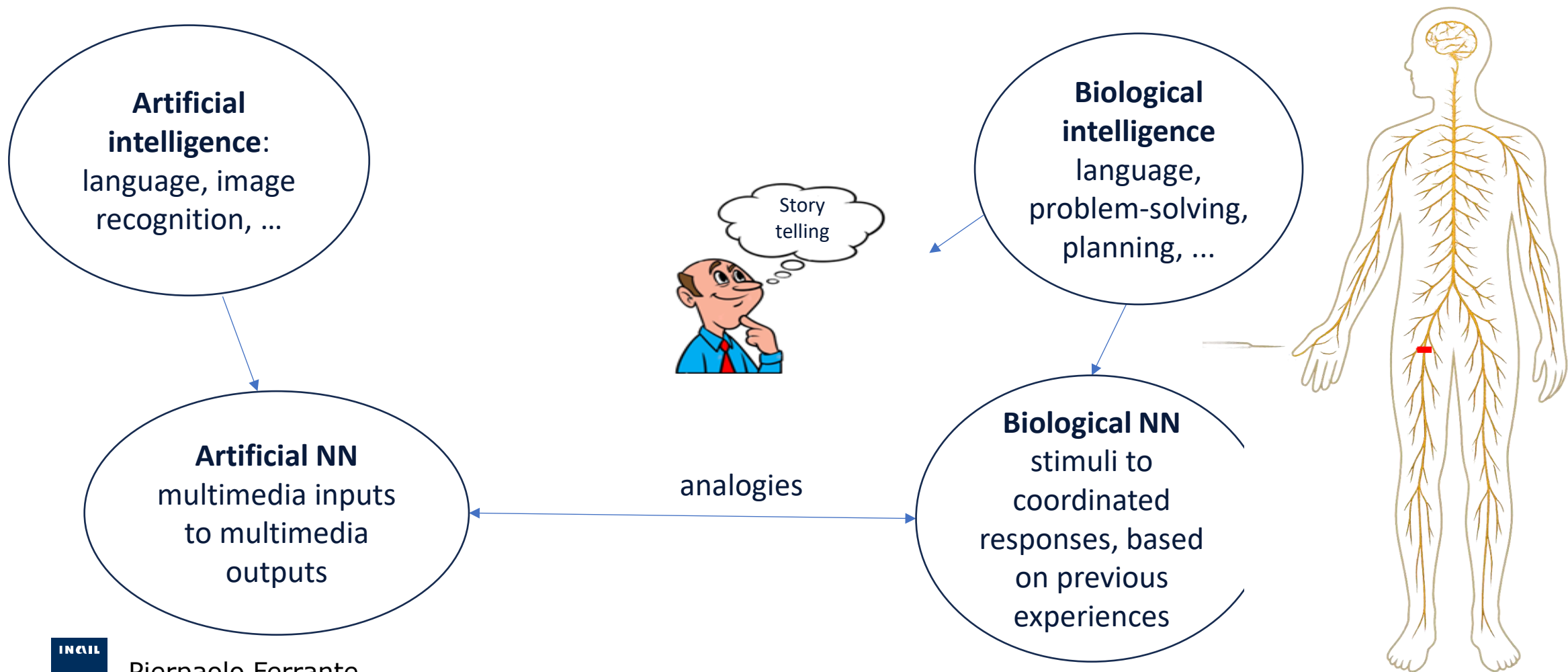
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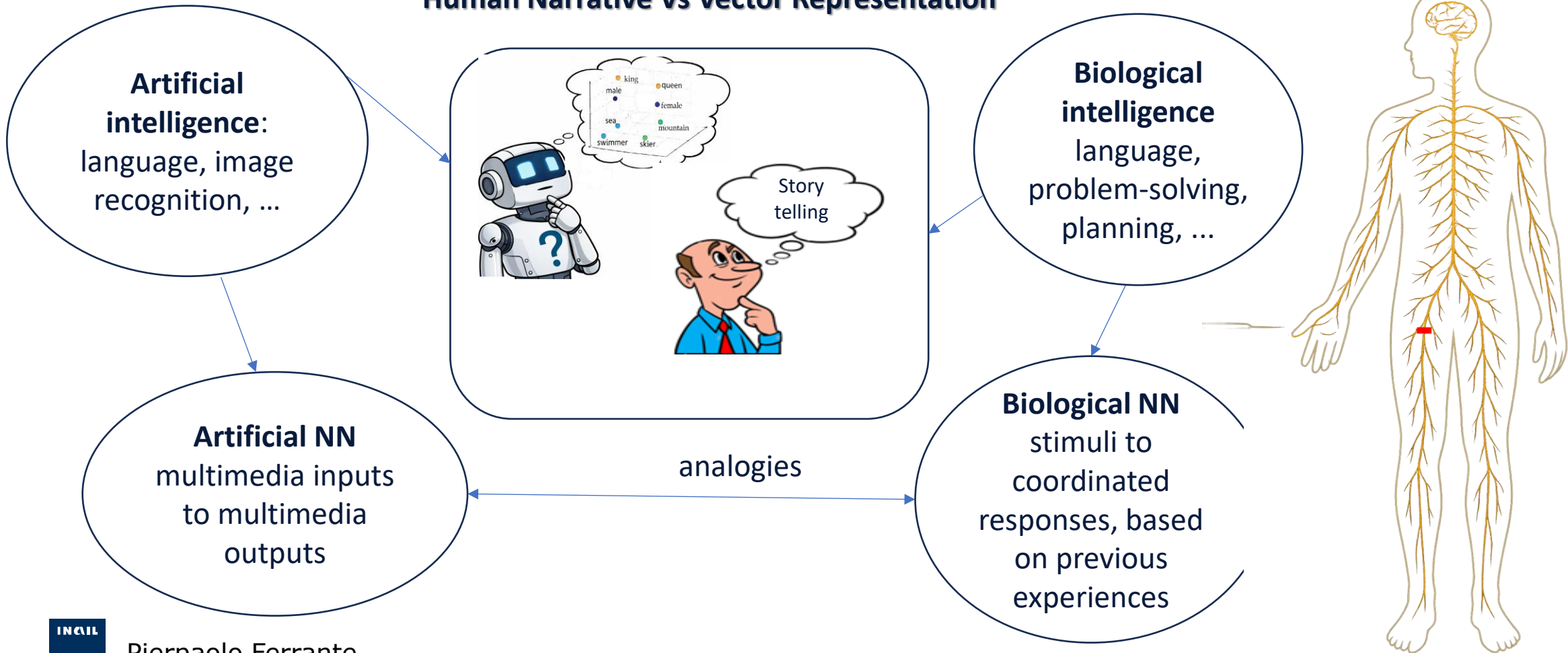
Methodology: *narrative model*



Methodology: *narrative model*



Cognitive Processes: Human Narrative Vs Vector Representation



Neuron = Cook

Recipe

Ingredienti	Dose
Egg	3
sugar	180 g
Flour	250 g
milk	100 g
butter	120 ml
coffee	180 ml
yeast	bustina



Cook



dough



Oven at 180°

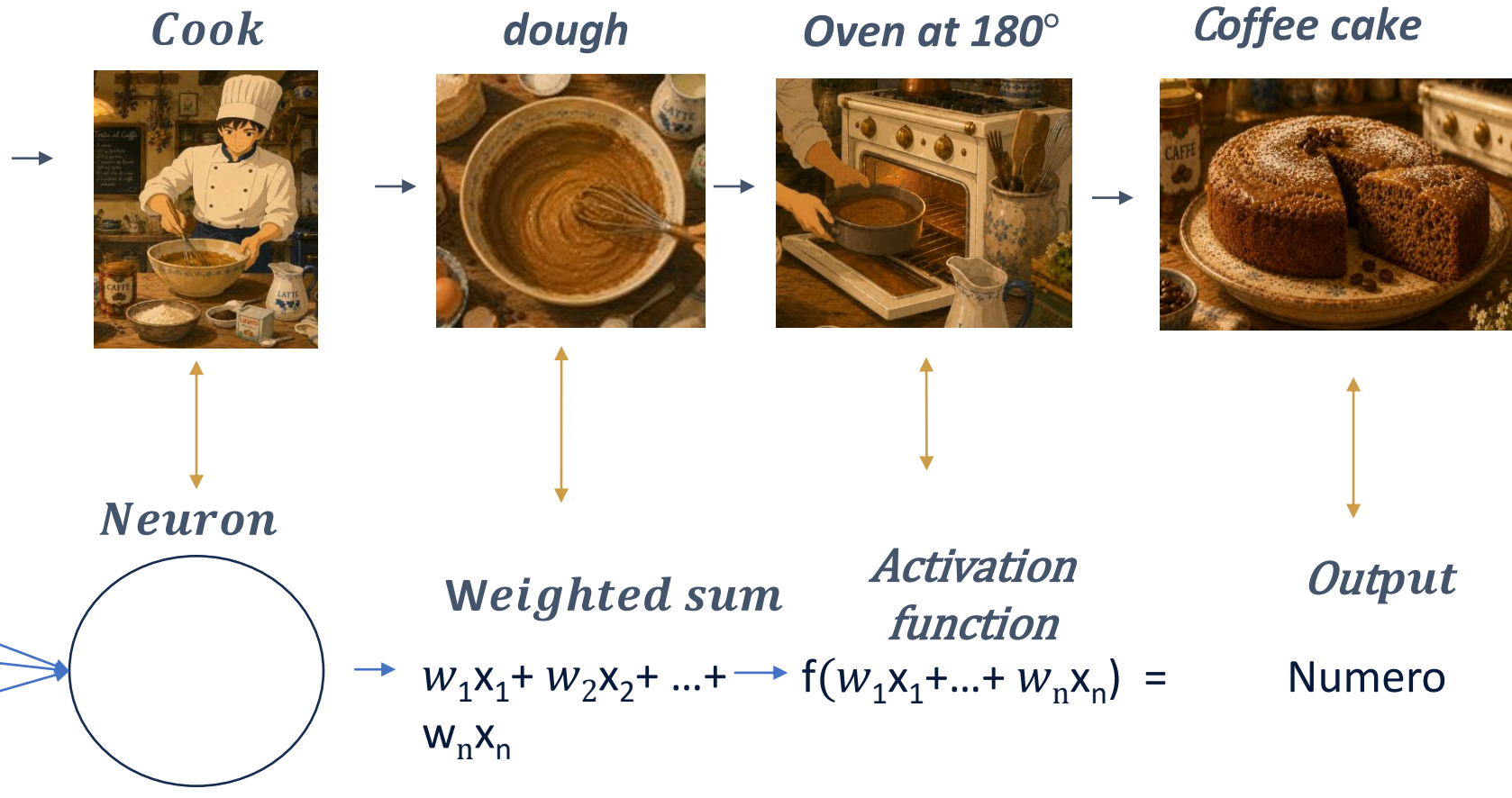


Coffee cake

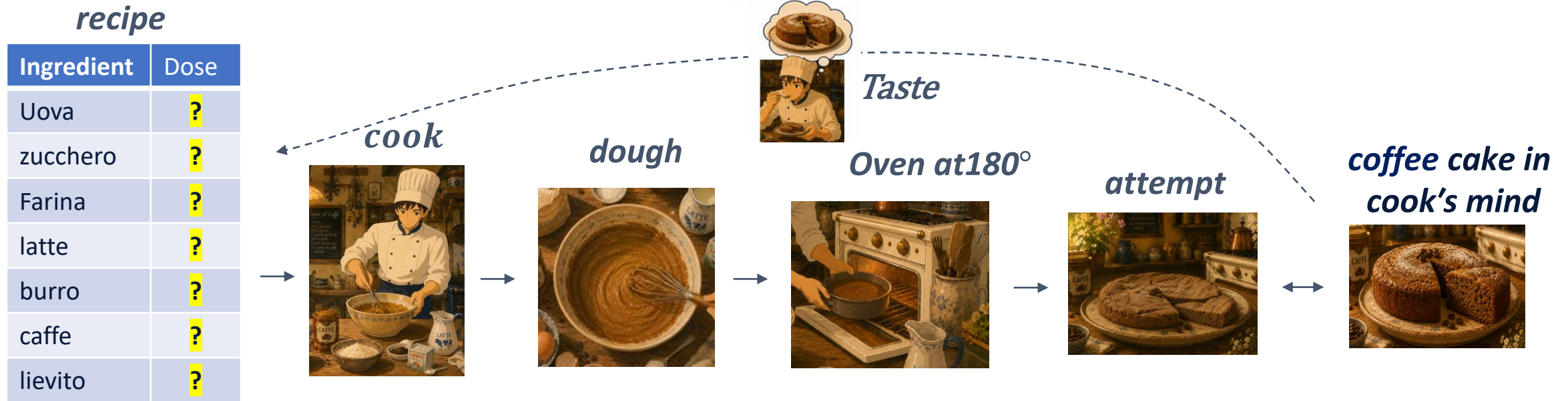


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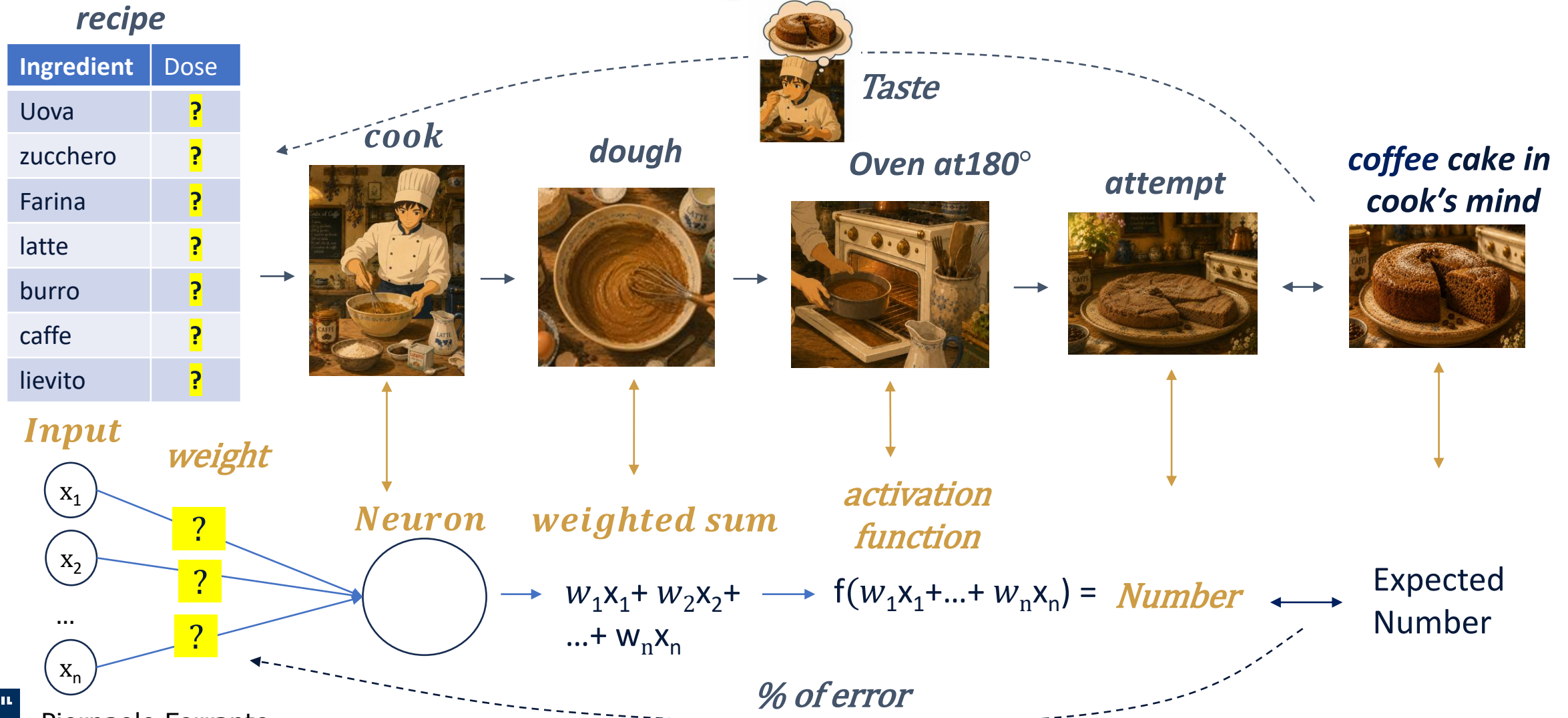
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Training = find doses



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Pierpaolo Ferrante

Methodology: *study design*

- Research design: A pilot descriptive study exploring the perceived impact of an AI literacy seminar.
- Explanation of instruments: anonymous unmatched pre-post questionnaires
- Study scope: Assessment of self-reported interest in AI (pre–post comparison)
- sample: 19 voluntary INAIL research workers (94% female; mean age 53; 50% in research or administrative positions)
- Data analysis procedures: descriptive comparison of aggregated pre–post percentage changes
- Ethical considerations and protocols: Informed consent was obtained; data were collected anonymously

Main findings

- 94% of attendees was participating in their first AI-focused event.
- 100% reported satisfaction with the materials and use of Technologies
- 86% stated that the content exceeded expectations.
- 86% would promote the event to a colleague.
- Before the workshop, 72% rarely or never used generative AI (primarily ChatGPT).
- After the workshop, 100% of participants reported increased interest in:
 - ☐ using AI tools.
 - ☐ related events

Conclusions

- The method is simple, transferable, and replicable across educational and institutional contexts.
- Results exceeded our initial expectations in terms of reported engagement.

Democratizing AI understanding is not optional; it is a necessary condition for equitable technological transformation.

Thank you for your ...

Thank you for your ...

- Attention (55%)
- Time (35%)
- Patience (10%)

Thank you for your attention