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OER 2.1.2

Connectionist Paradigms and Autonomous Extraction of Statistical Regularities

Identifier	OER 2.1.2
Title	Connectionist Paradigms and Autonomous Extraction of Statistical Regularities
Creator	University of Alicante - Spain
Description	The resource explains the mechanics of connectionist models: units, weights and layers, hierarchical latent representations and the autonomous extraction of statistical regularities. It describes self-attention and the parallelisation advantage of Transformers, with verified references (Vaswani et al., 2017). The didactic focus is on recognising that these models build a statistical geometry rather than conceptual understanding, and on drawing the consequences for teaching.
Keywords	connectionism; neural networks; latent representations; statistical regularities; self-attention; Transformer; feature learning; AI literacy
Language	EN (English)
Affiliation	University of Alicante - Spain
Contributor	STIAEM Transnational Scientific Board (peer review, Rhodes validation protocol)
Media Format	Text; Infographics
Genre	Training Manual; Educational Guide
URL	https://www.stiaemproject.eu/?oer_download=OER-2.1.2
Citation	University of Alicante. (2026). *Connectionist Paradigms and Autonomous Extraction of Statistical Regularities* [Educational guide]. Slow Tech Innovation: AI, Ethics, and New Teaching Methods (STIAEM), 2025-1-IT02-KA220-SCH-000365213.
References	Cosgrove, J., & Cachia, R. (2025). DigComp 3.0: European digital competence framework (Fifth edition). Publications Office of the European Union. https://data.europa.eu/doi/10.2760/0001149 LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. Nature, 521(7553), 436-444. https://www.nature.com/articles/nature14539 Miao, F., & Cukurova, M. (2024). AI competency framework for teachers. UNESCO. https://doi.org/10.54675/ZJTE2084 Jordan, M. I., & Mitchell, T. M. (2015). Machine learning: Trends, perspectives, and prospects. Science, 349(6245), 255-260. https://doi.org/10.1126/science.aaa8415 Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., Kaiser, Ł., & Polosukhin, I. (2017). Attention is all you need. Advances in Neural Information Processing Systems, 30. https://arxiv.org/abs/1706.03762
Educational Level	Secondary School
Associated Module / MOOC Video Lesson	Module 2 - AI Fundamentals and LLM Mechanics / Video 2.1 - Evolution of AI and Machine Learning
Learning Objectives	Describe what latent representations are and why they are organised hierarchically; explain the mechanism of attention (self-attention) and the parallelisation advantage in Transformers; recognise in algorithmic models a statistical geometry rather than

	conceptual understanding, drawing the didactic consequences.
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