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LEO XIV: ENZYKLIKA

QUO VADIS AI MOVIES?

SCHWEIZ: 11.30 CHF
AUSTRIA: 9.60 €



HALL OF FAME: HANS USZKOREIT

Text by Peter C. Krell

The formalisation of language: from words, through grammar and meaning, to contextual knowledge and knowledge of the world.

If the history of artificial intelligence were to be told as a drama in several acts, the big names in deep learning would feature in the first, spectacular act. The second, quieter and often underestimated act, however, takes place in the field of language. Here stands Hans Uszkoreit: one of the architects of that European language AI without which today's large language models would be almost unimaginable.

Hans Uszkoreit was born in Rostock in 1950 and is today one of the leading figures in computational linguistics in Germany and Europe. Prof. Dr Hans Uszkoreit has taught at Saarland University, the Technical University of Berlin and other institutions, and for decades served as scientific director at the German Research Centre for Artificial Intelligence, where he helped establish the Language Technology research division as well as key institutional structures in Saarbrücken and Berlin.

His true merit, however, lies not merely in titles and positions, but in a unique form of academic architecture. Whilst many AI researchers are reduced to individual algorithms or model classes, Uszkoreit stands for the long-term development of an entire field of research. He worked to understand natural language not merely as a data stream, but as a structured form of knowledge: with grammar, meaning, context and implicit world knowledge.

This perspective shaped his work on parsing, machine translation, information extraction, cross-linguistic information retrieval, question answering and deep language processing. This is precisely where his historical significance lies. For long before the term 'large language model' became a global buzzword, Uszkoreit was already working on helping machines grasp the structural properties of language. His laboratory at the DFKI conducted research into systems designed not only to sort texts statistically, but also to analyse their content and make it usable for applications in business, science and public administration. What seems self-evident today – machine translation, semantic search, intelligent text analysis and conversational systems – is also based on this groundwork laid over decades.

Uszkoreit's influence is particularly evident in his commitment to Europe's linguistic and technological sovereignty. From 2010 to 2015, he coordinated META-NET, the European network of excellence for the multilingual information society. This network brought together 60 research centres in 34 countries and the Multilingual Europe Tech-

nology Alliance, comprising 289 member organisations in 43 countries. META-NET was thus far more than a research consortium: it was an attempt to ensure that Europe remained digitally capable in the age of language. Hans Uszkoreit never regards language merely as an interface, but as infrastructure. After fleeing the former GDR, he realised that whoever masters language technology also controls access to knowledge, media, public administration and markets. On a multilingual continent such as Europe, this realisation has strategic implications. This is precisely why he focused not only on research, but also on networks, standards, collaboration and technology transfer. His career illustrates that scientific relevance in the field of AI does not arise solely from code, but also from institutions, consortia and resources.

A third phase of his career took him straight from research into the race for generative models. As co-founder and Chief Scientist of nyonic, Uszkoreit sought to help develop a European response to the dominance of American and Chinese AI companies. The fact that the company had to be restructured at an early stage and that several founding members left in 2024 reflects not so much an entrepreneurial failure as the harsh reality of a field in which technological development, capital pressures, and geopolitical interests and cultures collide at an extraordinary pace. It is precisely this step into the world of start-ups that underlines the fact that Uszkoreit was never merely an observer of the AI transformation, but repeatedly sought to play an active role in shaping it. This story takes on an additional, almost symbolic dimension when we turn our attention to the next generation.

Hans Uszkoreit's son, Jakob, as a co-author of the Transformer paper 'Attention Is All You Need', became a key figure in the architecture that enabled the breakthrough of modern large language models. Whilst his father helped to build up the linguistic, institutional and European infrastructure of language AI over decades, his son contributed to designing the technical architecture on which ChatGPT and many other systems are based today. This constellation is more than a biographical footnote. It illustrates how two strands of AI development intersect within a single family: on the one hand, the patient shaping of a scientific discipline; on the other, the algorithmic leap into a new era.

Hans Uszkoreit's significance therefore does not lie in a single moment of hype. It lies in continuity. Over more than four decades, he has helped to build up language AI in Ger-



many and Europe, helped shape research centres, founded companies, organised collaborations and, time and again, explored the relationships between language, knowledge and machine intelligence. In a present that often focuses solely on the latest developments, his career serves as a reminder that technological upheavals rarely arise out of nowhere. They grow on foundations. Hans Uszkoreit played a decisive role in laying one of these foundations.

Key roles and institutional development

At the DFKI, Uszkoreit headed the Language Technology Research Department for more than 25 years, as well as the Saarbrücken site and, later, the Berlin site, which he founded. Under his leadership, leading research programmes were established there in the fields of information extraction, cross-lingual information retrieval, question answering, parsing, machine translation and deep language processing.

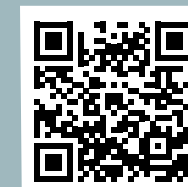
By coordinating the European network of excellence META-NET (2010–2015), he established a link – particularly relevant today – between research centres and the international debate on Europe's digital and linguistic sovereignty.

A strategic voice in the age of large models

In talks such as 'Large AI Models in a Global Perspective' (Rise of AI Conference 2022) and 'Generative AI: Strengths, Opportunities & Risks' (Petersberg Talks 2023), Uszkoreit places the development of large language models within a global, economic and societal context. He examines the technological differences between earlier AI and today's foundational models, their strengths and limitations, as well as issues of geographical concentration, regulation and European sovereignty. This makes him not only a pioneer of early language AI, but also one of the clearest voices in the debate on Europe's role in a world where the most powerful models are predominantly developed in the US and China. His legacy is an AI that is scientifically sound, technologically ambitious and politically and culturally reflective.



Rise of AI 2025 Vortrag



Hans Uszkoreit DBLP Page



Google Scholar Profile

Groundbreaking research programmes and projects

Several significant, frequently cited projects illustrate Uszkoreit's influence:

- **EuroMatrix & EuroMatrixPlus** – European flagship projects in the field of statistical and hybrid machine translation, in which he played a key role as project leader; they laid the foundations for modern multi-lingual translation systems.
- **QTLaunchPad** – Preparation and launch of a large-scale European initiative for high-quality translation technology, with a focus on quality, evaluation and industrial applicability.
- **QTLearn (Quality Translation by Deep Language Engineering Approaches)** – A project aimed at improving translation quality through deep linguistic analysis, which technically formulated the concept of 'Deep Language Engineering' long before the deep learning boom.
- **Deependence (Deep Dependency-Oriented Analysis with Non-Discrete Constraints)** – Research into deep, dependency-oriented linguistic analysis, which provides key building blocks for many language technology applications (parsing, information extraction).
- **Smart Data Web** – A project that bridges the gap between publicly accessible web information and the internal information ecosystems of large companies, thereby addressing knowledge management within organisations and data-driven business practices.
- **ALL-SIDES** – A project focusing on new language technology methods for analysing large volumes of text to support decision-making; in this context, language is explicitly understood as a resource for 'social intelligence' in complex information spaces. Furthermore, he was a co-initiator of the international DELPH-IN consortium for Deep Language Processing, which has implemented formal, linguistically grounded analytical methods in scalable software systems. This line of work is later reflected in research on semantic analysis, knowledge graphs and linguistically motivated evaluation suites, as exemplified in recent arXiv publications in which he is involved.

Scientific Significance and Publications

Uszkoreit's research is documented in more than 200–250 international publications, ranging from formal grammar theory, through parsing and semantic representation, to applied machine translation and text analysis. An overview of his scientific work can be found, for example, in:

- His own **list of publications**, including articles, books and conference papers: DFKI publication list / hans.uszkoreit.net
- The collection in the **ACL Anthology**, where many of his influential



conference papers from the ACL/ COLING community are available:

- **ACL Anthology** – Hans Uszkoreit
<https://aclanthology.org/people/h/hans-uszkoreit/>



His work is widely cited, including in databases such as DBLP and Google Scholar, reflecting his long-standing and continuous publishing activity in the core field of computational linguistics.

Awards, spin-offs and collaboration with industry

Uszkoreit consistently combines basic research with industrial application. He is a co-founder of several AI start-ups and was, or is, Chief Scientist at the start-up GIANCIE, an AI solutions company that emerged from the DFKI in 2018. He is also a co-founder and Chief Scientist at the start-up nyonic, which specialises in large AI models with a European focus.

For his work, he has received, amongst other honours, a Google Faculty Research Award (2012) and a Google Focused Research Award (2013, jointly with his wife **Feiyu Xu** and **Roberto Navigli**) – a clear indication of how relevant his research is to global technology companies. He has also been elected to the European Academy of Sciences.

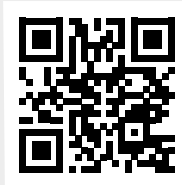
His role as an adviser to major companies – for example, as Chief AI Advisor to the technology group Lenovo during a stay of several years in Beijing – underlines his influence at the interface between research, product development and global AI strategy.

Further information:

Biography and brief CV (PDF):
Short biography – Hans Uszkoreit



Detailed list of publications:
Publications – hans.uszkoreit.net



Project overview and profile at DFKI:
DFKI – Prof. Dr Hans Uszkoreit: covering projects such as QTLearn, QTLaunchPad, Deependence, Smart Data Web and ALL-SIDES (project pages accessible via the DFKI profile).



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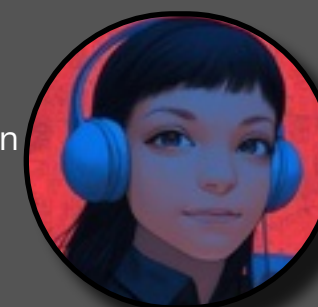
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