Knowledge Graphs

Lecture Overview

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Autumn 2020

Knowledge Graphs

Information Service Engineering

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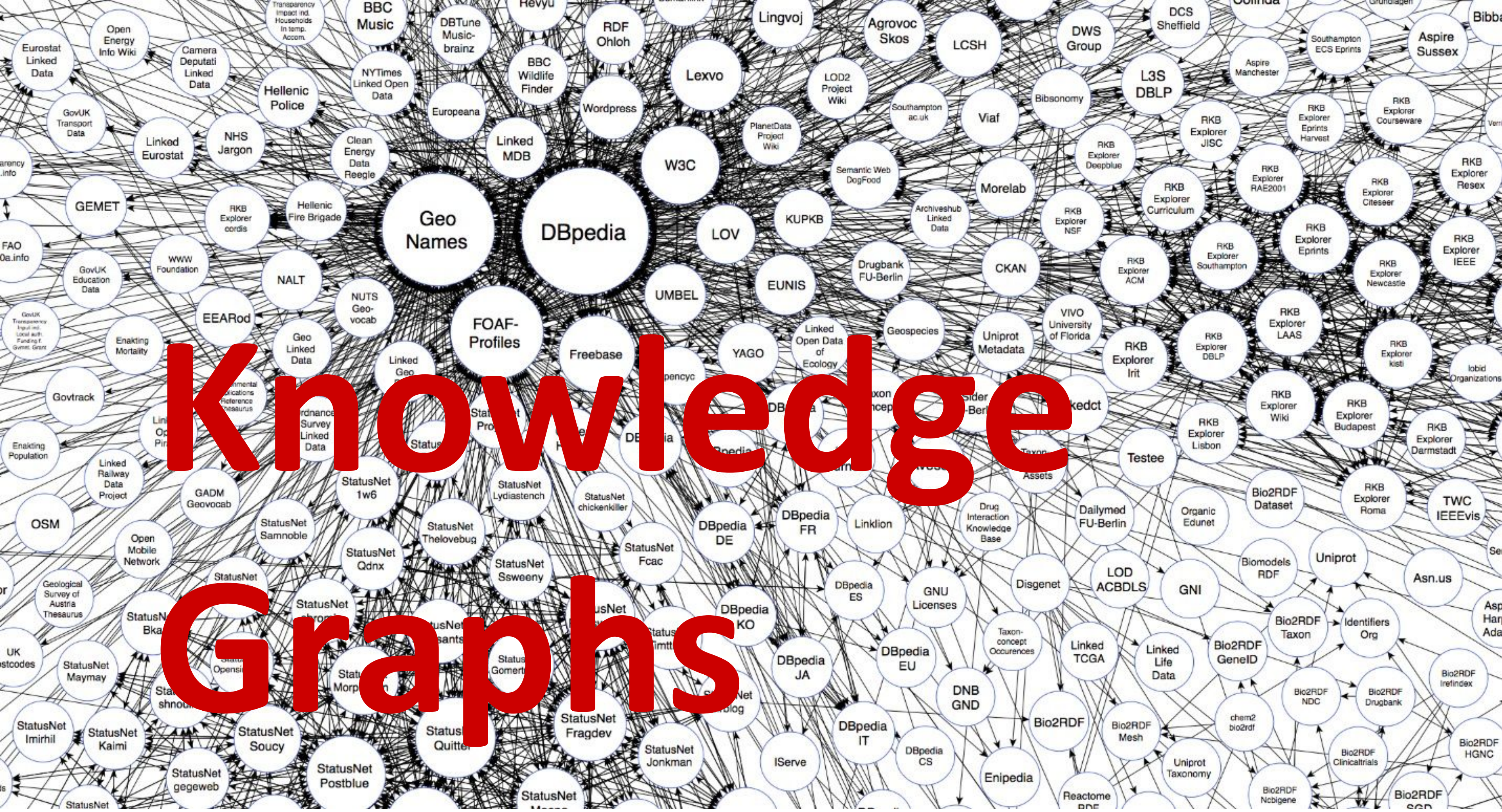

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Who is “Neil Armstrong”?

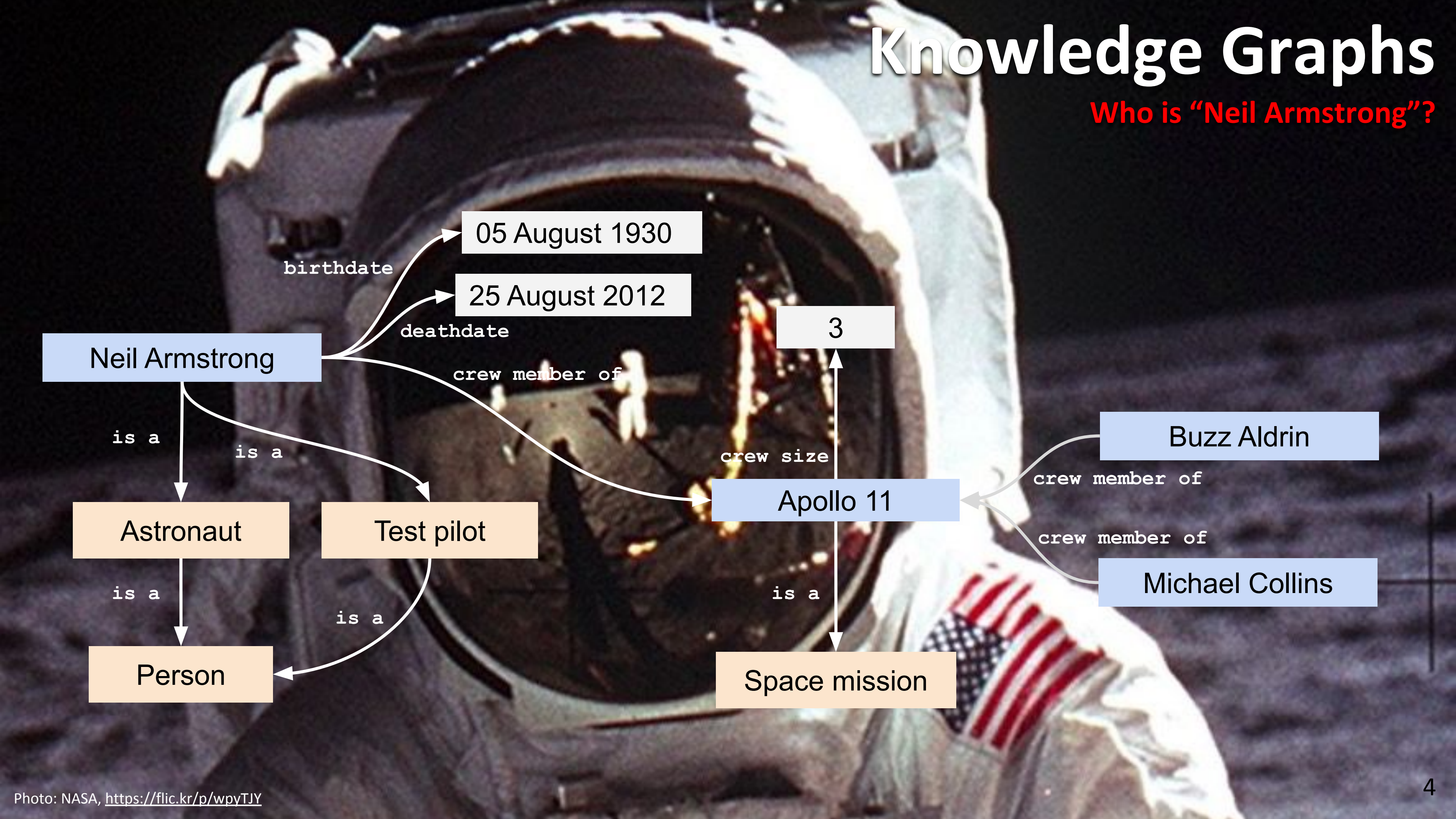

Photo: NASA, https://flic.kr/p/wpyTJY

Knowledge Graph Applications

Innovative Information Systems

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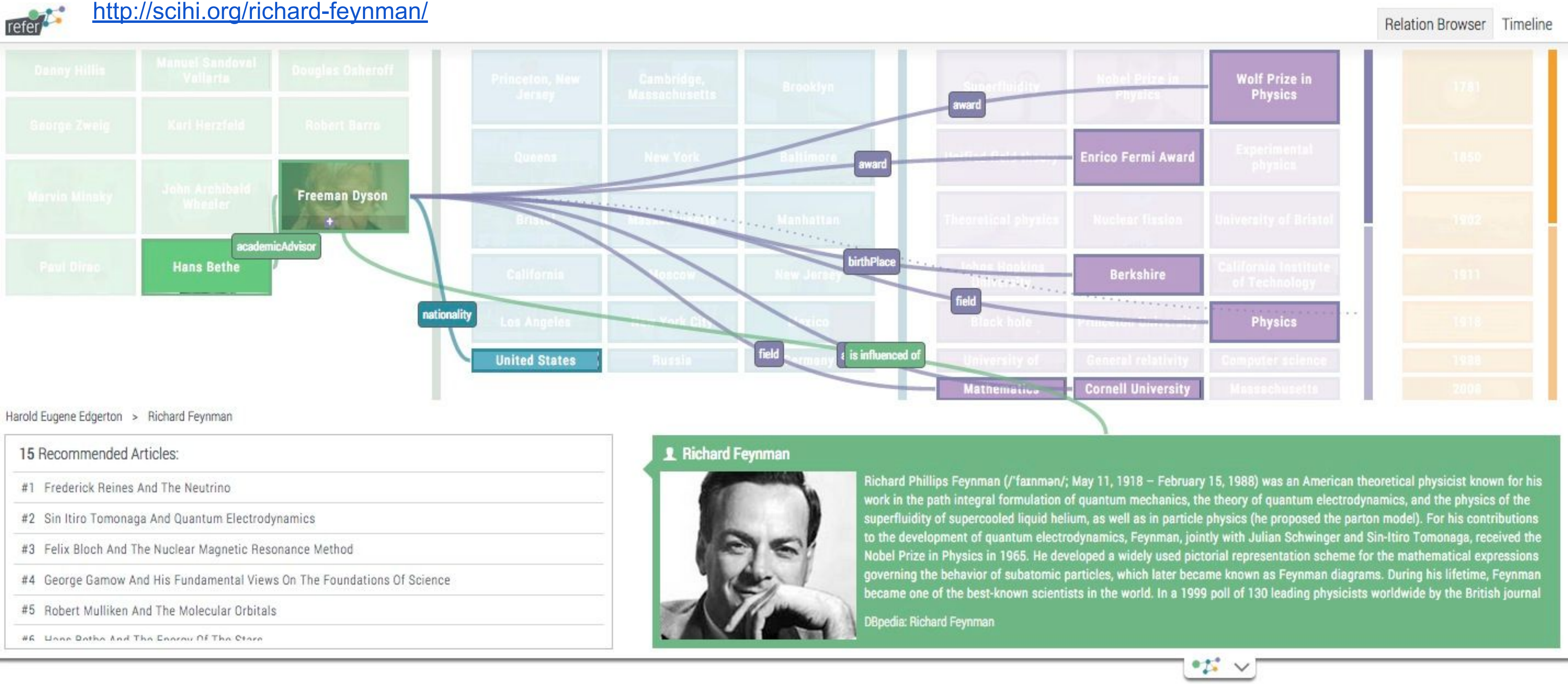
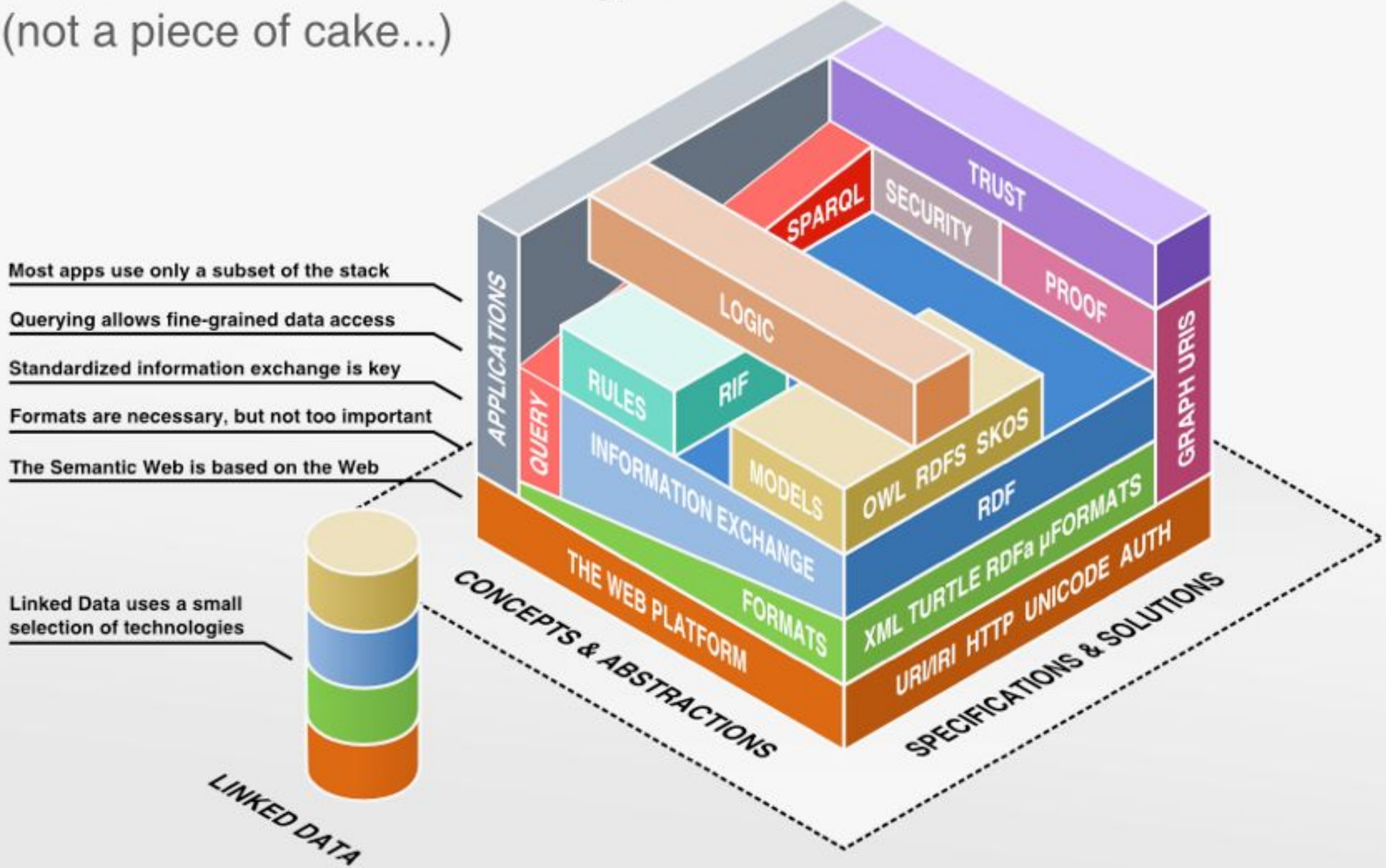
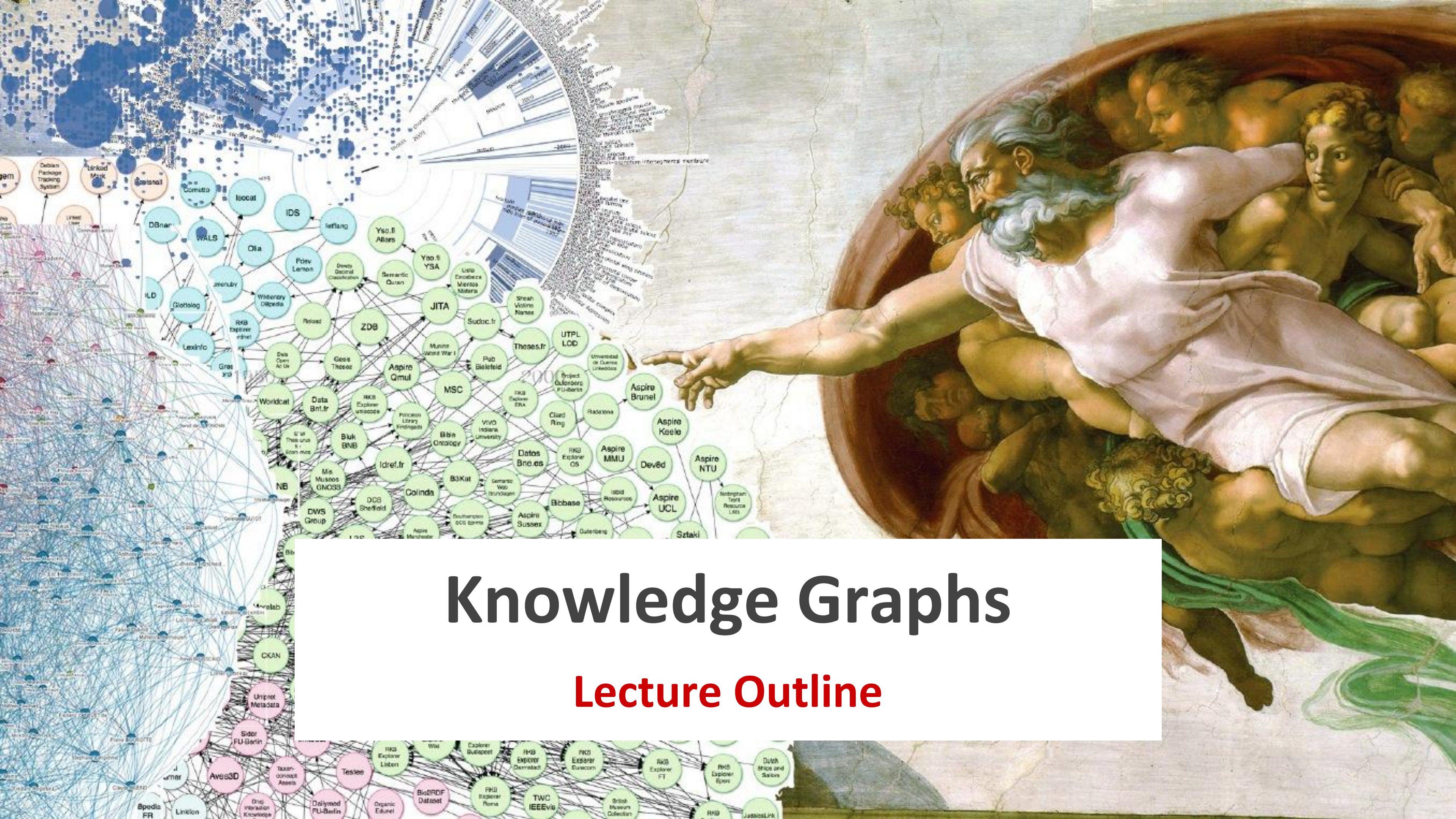
http://scihi.org/richard-feynman/



The Semantic Web Technology Stack
(not a piece of cake...)





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Lecture Outline

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Lecture 1: Knowledge Graphs in the Web of Data

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Lecture 2: Basic Semantic Technologies

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Lecture 3: Querying RDF with SPARQL

3.1 How to Query RDF(S)

Excursion 2: DBpedia Knowledge Graph

Excursion 3: Wikidata Knowledge Graph

3.2 Complex Queries with SPARQL

3.3 More Complex SPARQL Queries

3.4 SPARQL Subqueries and Property Paths

3.5 RDF Databases

3.6 SPARQL is more than a Query Language

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Lecture 4: Knowledge Representation with Ontologies

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Lecture 5: Knowledge Graph Applications

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Lecture 6: Advanced Knowledge Graph Applications

6.1 The Graph in Knowledge Graphs

6.2 Knowledge Graph Embeddings

6.3 Knowledge Graph Completion

6.4 Knowledge Graph Mappings and Alignment

6.5 Semantic Search

6.6 Exploratory Search and Recommender Systems

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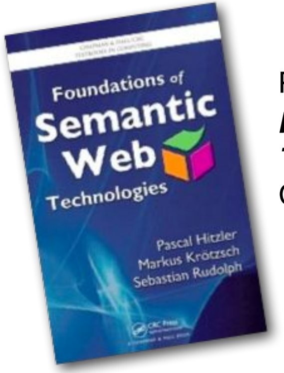
A Brief Bibliography



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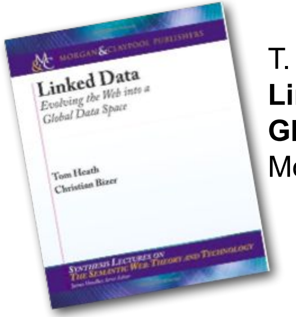

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