

# More productive research with intelligent agent

Kuansan Wang

Microsoft Research  
Faculty Summit  
**2015**  
July 8-9, 2015



# MORE PRODUCTIVE RESEARCH WITH INTELLIGENT AGENT

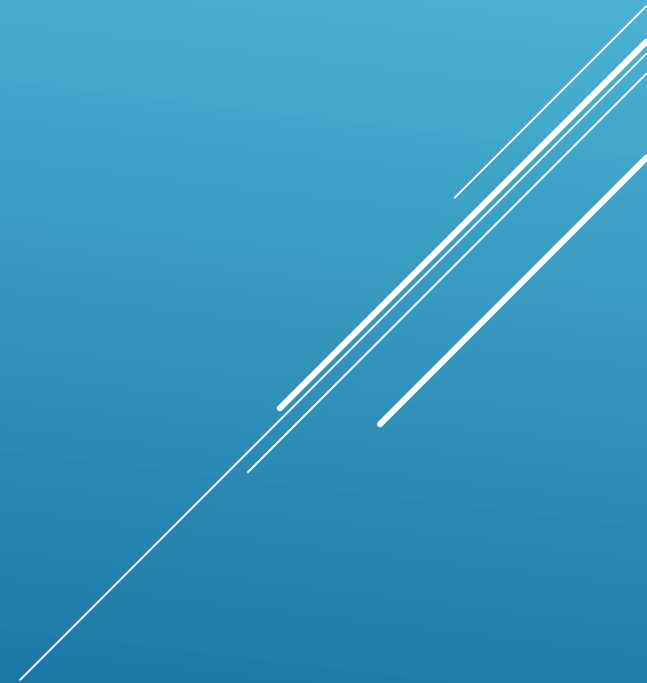
Kuansan Wang

Director, ISRC

Microsoft Research, Redmond, WA

- ▶ Reid Hoffman, co-founder of LinkedIn
  - ▶ Web 1.0: Search and Transact on Directory
  - ▶ Web 2.0: Search and Transact on Graph
  
- ▶ We believe
  - ▶ Web 3.0: Informed, Connected, Entertained and Transact with Intelligent Agent



## EVOLUTION OF THE WEB





### ACADEMIC

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-  Argue, observe, assess: Measuring disciplinary identities and differences through socio-epistemic discourse  
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-  Screening Internet forum participants for depression symptoms by assembling and enhancing multiple NLP methods  
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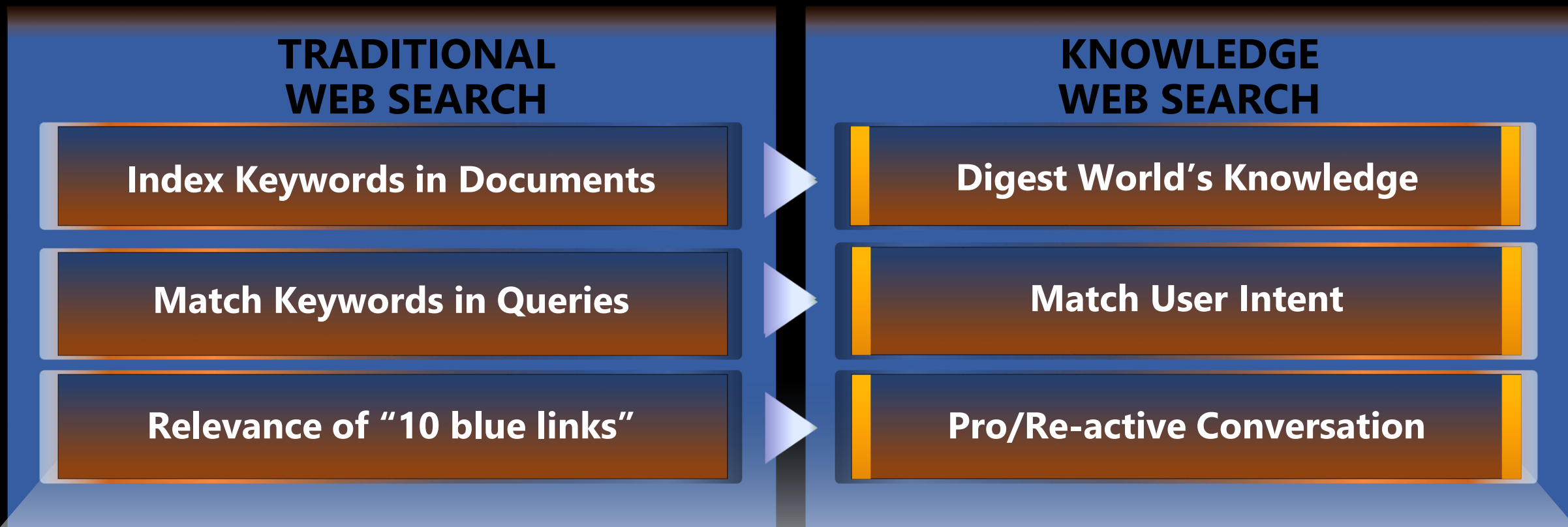
# Semantic Web

- Human readable vs machine readable contents
- Human defines standard for data formats and models
- Explicit and precise specification of knowledge representation that everyone has to agree upon


# Knowledge Web


- Machine reads human readable contents
- Machine learns to conflate different formats of the same thing
- Latent and fuzzy representation of knowledge learned by mining big data

# Paradigm Shift in Web Search



1. "Bing Dialog Model: Knowledge, Intent and Dialog", MSR Faculty Summit, July 2010
2. "Introducing the Knowledge Graph: things, not strings", Official Google Blog, May 2012
3. "Chinese Search Engine – Baidu's Practice", SIRIP, SIGIR 2014, July 2014

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 **Oren Etzioni**  
Researcher of Artificial Intelligence

Oren Etzioni is an American entrepreneur and professor of Computer Science. He joined the University of Washington faculty in 1991, where he is the Washington Research Foundatio...

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## Oren Etzioni's Home Page - University of Washington

[homes.cs.washington.edu/~etzioni](https://homes.cs.washington.edu/~etzioni) ▾

Professor **Oren Etzioni** As of January 1, 2014 I am the CEO of the **Allen Institute for AI** (AI2). I can still be reached at my UW email address, but my new homepage is ...

### Students

Professor **Oren Etzioni** Director of the Turing Center

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In the popular press... **Oren Etzioni** is GeekWire's Geek of the Week; ...

### Publications

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## Oren Etzioni - Wikipedia, the free encyclopedia

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**Oren Etzioni** is an American entrepreneur and professor of Computer Science and Executive Director of the **Allen Institute for Artificial Intelligence**.

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Researcher of Artificial Intelligence

Oren Etzioni is an American entrepreneur and professor of Computer Science. He joined the University of Washington faculty in 1991, where he is the Washington Research Foundation Entrepreneurship Professor in the Department of Computer Science and Engineering. ... +

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## Timeline

**1994:** A softbot-based interface to the Internet written by Oren Etzioni was first published in 1994.

**1995:** Multi-Service Search and Comparison Using the MetaCrawler written by Oren Etzioni was first published in 1995.

**1997:** A scalable comparison-shopping agent for the World-Wide Web written by Oren Etzioni was first published in 1997.

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## [PDF] A Softbot-Based Interface to the Internet

<https://www.aaai.org/Papers/ARPI/1996/ARPI96-020.pdf>**A Softbot-Based Interface to the Internet** **Oren Etzioni** and Daniel Weld\* Department of Computer Science and Engineering University of WashingtonPublished in: [Communications of the Acm](#) · 1994Authors: **Oren Etzioni** · Daniel S WeldAffiliation: [University of Washington](#)About: [Behavior change](#) · [World Wide Web](#)

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[turing.cs.washington.edu/papers/emnlp05\\_opine.pdf](https://turing.cs.washington.edu/papers/emnlp05_opine.pdf)**Extracting Product Features and Opinions from Reviews** Ana-Maria Popescu and **Oren Etzioni** Department of Computer Science and Engineering University of ...Published in: [NaacI](#) · 2005Authors: [Anamaria Popescu](#) · **Oren Etzioni**



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Authors: Gao Cong · Long Wang · Chinyew Lin · Youngin Song · Yongheng Sun

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## Question answering

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  - ▶ Mobile and multimodal interface

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- ▶ Microsoft Academic Graph
- ▶ Azure for Research
  
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  - ▶ Rank papers (then authors, conferences, journals, institutions,...)
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