

# Membangun Semantik dengan Ontologi: Sebuah Komponen Penting dalam Komputasi Pervasif

Jan Peter Alexander (0906503805)

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# Impian Seorang Mark Weiser



“The idea of integrating computers seamlessly into the world at large runs counter to a number of present-day counter.”

“By pushing computers into background, embodied virtuality will make individuals more aware of the people on the other ends of their computer links”

# Masalah

The image shows a screenshot of a web browser displaying the Universitas Indonesia website. The browser window title is "Universitas Indonesia - Konqueror". The address bar shows "http://www.ui.ac.id/". The website header features the Universitas Indonesia logo and the motto "veritas, probitas, iustitia". Navigation links include "Perpustakaan", "e-Learning", "TIK", "Webmail", "Sitemap", and "Kontak". A search bar with "Google Custom Search" and a dropdown menu with "Akses Cepat" are also visible.

**Tentang UI**

- Akademik
- Pendaftaran
- Penelitian
- Internasional
- Perpustakaan
- Administrasi & Layanan
- Mahasiswa
- Staf Akademik
- Alumni

**Magister Herbal**

Pertama dibuka di Indonesia

Universitas Indonesia

Peminatan:  
Herbal Medik | Herbal Keperawatan | Estetika Indonesia

1 2 3 4 5

# Yang Manusia Lihat



Universitas Indonesia

Perpustakaan [di UI]

Tentang UI

Program Studi Magister  
Herbal

Pertama kali di Indonesia

# Yang Mesin Lihat



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Tampilan untuk manusia!

# Impian Sir Tim Berners-Lee



So the Semantic Web is about integration, it is like getting power when you use the data, it is giving people in the company the ability to do queries across the huge amounts of data the company has.

# Kebutuhan

- Perlu definisi jelas yang bisa dibaca mesin.
- Bisa dibaca tanpa ambiguitas.
  - Rigid
  - Baku.
- Dapat diambil nilai semantiknya
- Portabel,

“Ontologi”

# Terminologi

- Ontologi:
  - Di bidang filsafat yang berarti teori tentang keberadaan (eksistensi)
  - Sebuah spesifikasi eksplisit dari sebuah konseptualisasi
  - Bagian dari sebuah pengetahuan yang mendeskripsikan suatu domain



# Membuat Ontologi

- Pembelajaran ontologi.
- Pemetaan dan penyatuan ontologi-ontologi yang ada.
- Pembelajaran instans Ontologi.

# OWL

- RDF + Inference System
- First Order Logic.
- W3C menghasilkan:
  - OWL Lite
  - OWL DL
  - OWL Full

# OWL (Cont'd)

- OWL Lite:

“supports those users primarily needing a classification hierarchy and simple constraint features”

# OWL (Cont'd)

- OWL DL: (Description Logic)

“supports those users who want the maximum expressiveness without losing computational completeness (all entailments are guaranteed to be computed) and decidability (all computations will finish in finite time) of reasoning systems.”

# OWL (Cont'd)

- OWL Full:

is meant for users who want maximum expressiveness and the syntactic freedom of RDF with no computational guarantees



# OWL (Cont'd)

- Every legal OWL Lite ontology is a legal OWL DL ontology.
- Every legal OWL DL ontology is a legal OWL Full ontology.
- Every valid OWL Lite conclusion is a valid OWL DL conclusion.
- Every valid OWL DL conclusion is a valid OWL Full conclusion

# Rencana Proyek

- Menerapkan OWL
  - Protege
  - OWLEditJar
  - Pellet (OWL 2.0)
- Menerapkan OWL-S
- Menerapkan Inference Engine sederhana.
  - JENA

Long Live JAVA!

# Daftar Pustaka

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