CS6700 Advanced AI

Bart Selman

Projects

Very open-ended

Go for BIG ideas! (No such thing as "failure.")
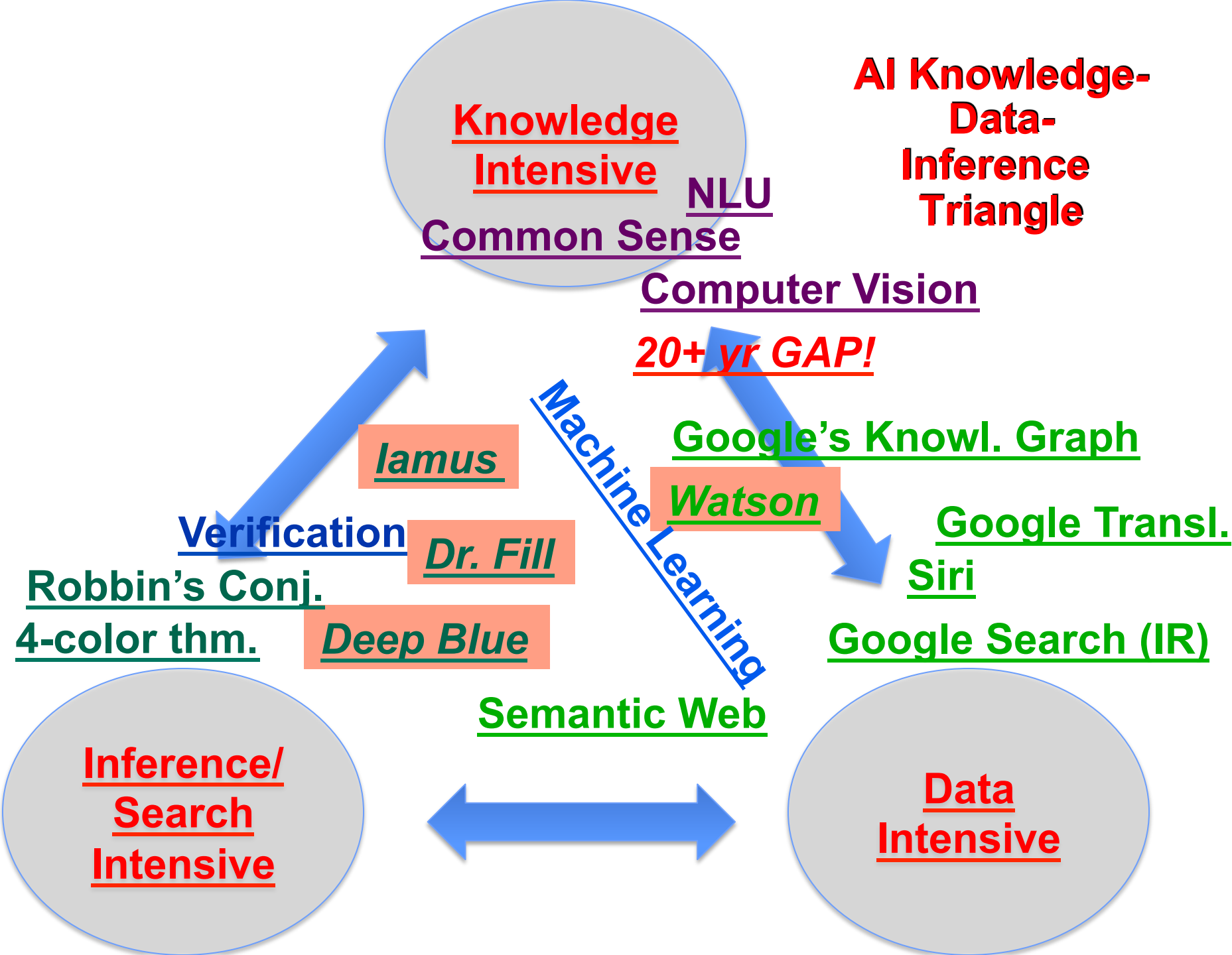
E.g.

Can you evolve a language from scratch?

Can you learn from "reading"? (E.g. game play from text on discussion boards)

Mechanical Turk --- Human-computing hybrids

Mine info from twitter feeds

Boost game play via "mimicry"

Knowledge Intensive

NLU
Common Sense
Computer Vision

AI Knowledge-Data-Inference Triangle

20+ yr GAP!

Machine Learning

Iamus

Google's Knowl. Graph

Watson

Google Transl.

Verification

Dr. Fill

Siri

Robbin's Conj.

Deep Blue

Google Search (IR)

4-color thm.

Semantic Web

Inference/ Search Intensive

Data Intensive

Knowledge or Data?

Last 5 yrs: New direction.

Combine a few general principles / rules (i.e. knowledge) with training (ML) on a large expert data set to tune hundreds of model parameters. Obtain world-expert performance using inference.

Examples:

--- IBM's Watson / Jeopardy

--- Dr. Fill / NYT crosswords

--- Iamus / Classical music composition

Performance: Top 50 or better in the world!

Is this the key to human expert intelligence?

Discussion / readings topic.