

Artificial, Natural, and Social Intelligence

Haym Hirsh

Department of Computer Science

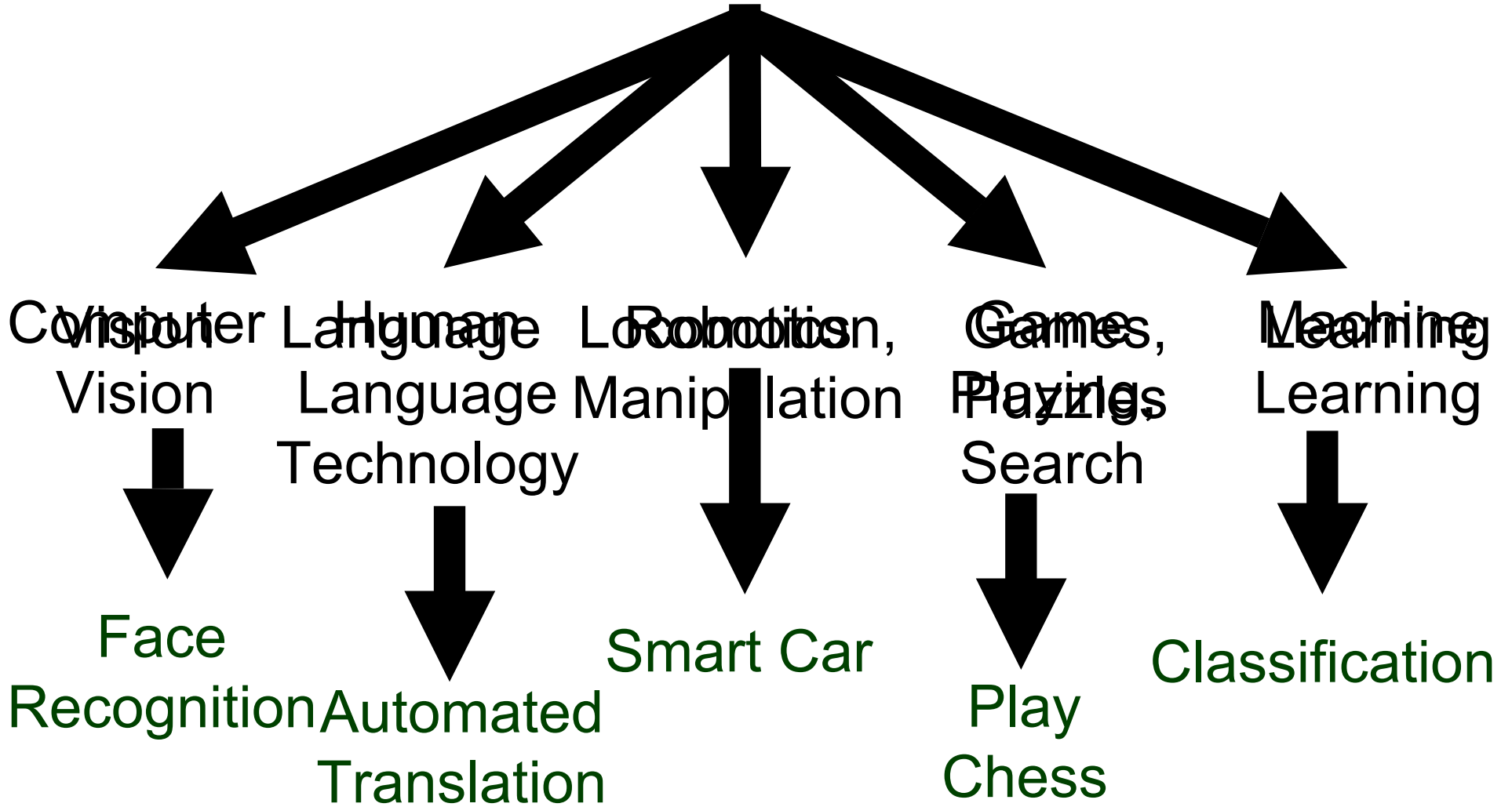
Rutgers University

(Information and Intelligent Systems

Computer and Information Science and Engineering

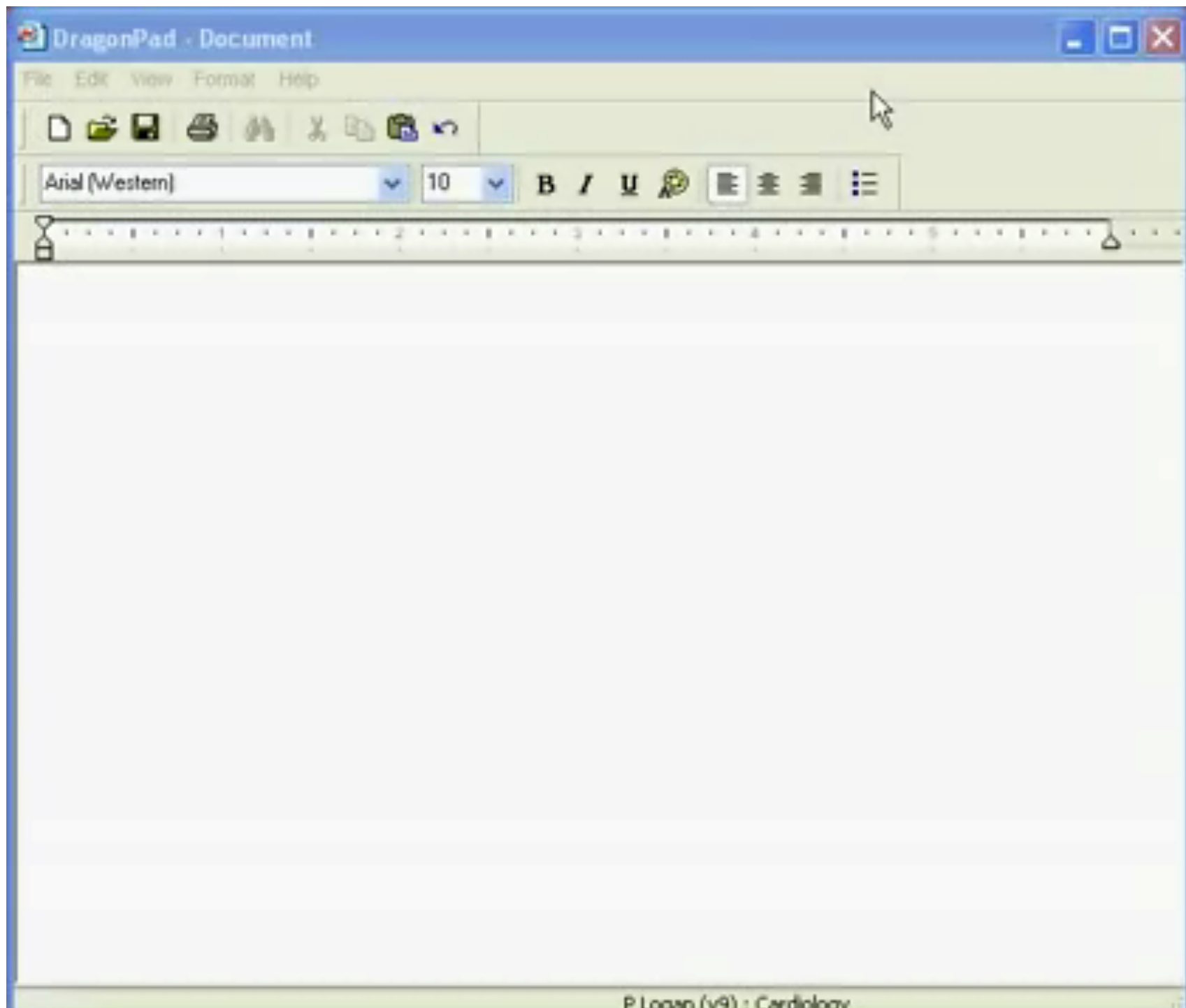
National Science Foundation)

Artificial Intelligence



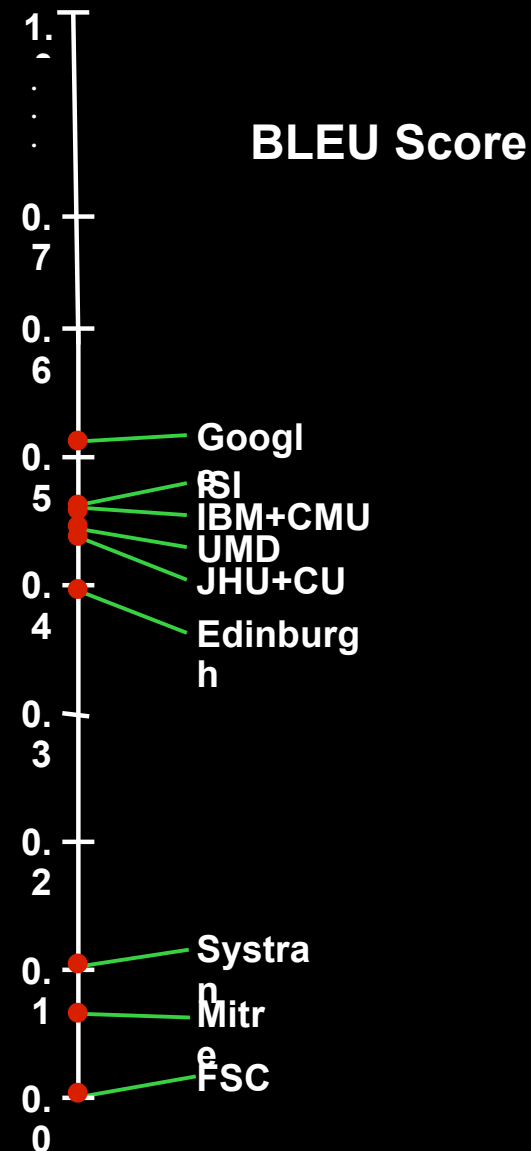






Arabic-to-English Performance on NIST 2005 MT Competition

- Purely statistical approach
 - 200 million words of high quality translated text
 - 1 trillion words of monolingual text in target language
- Ran on 1000-processor cluster during competition



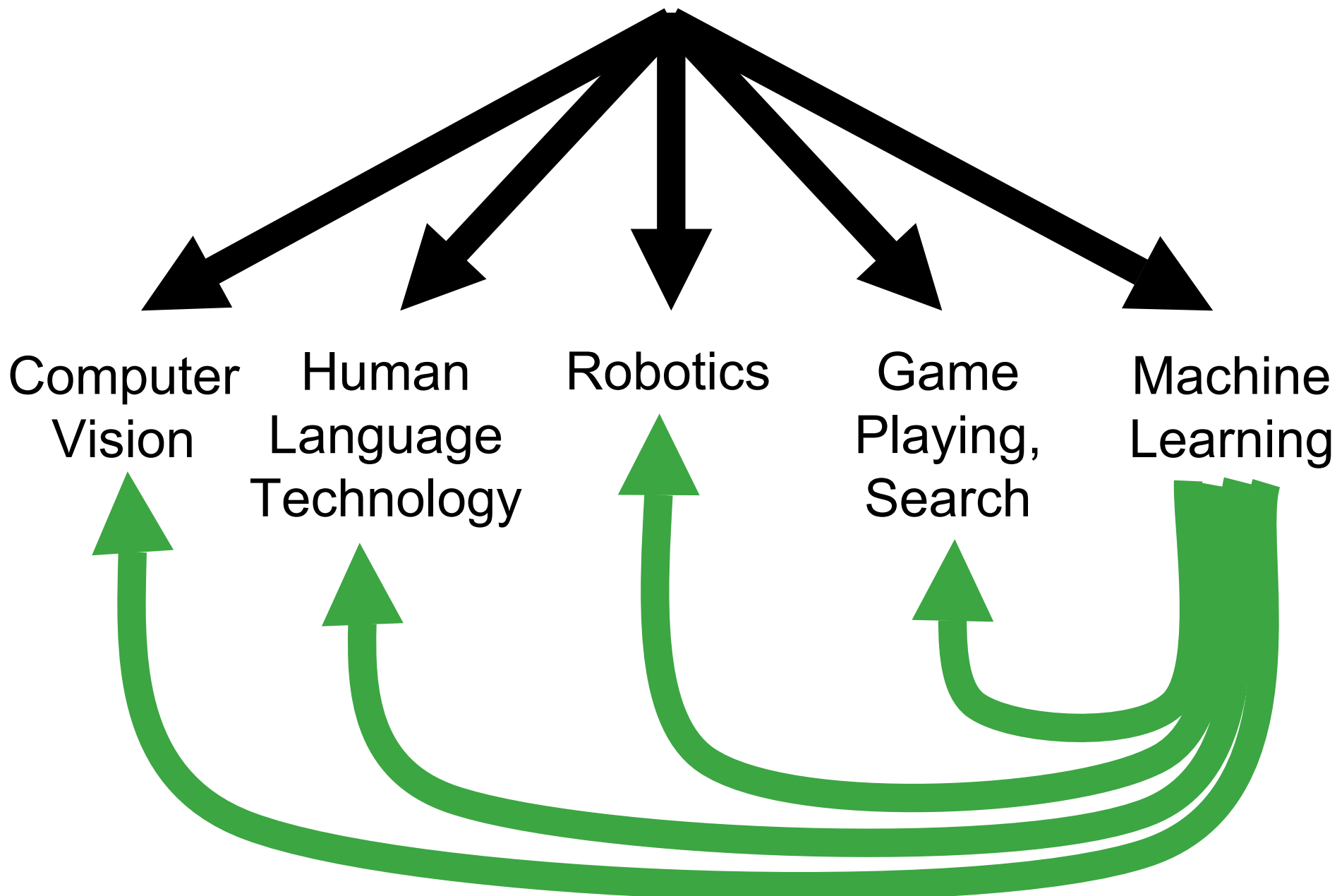




Boston Dynamics



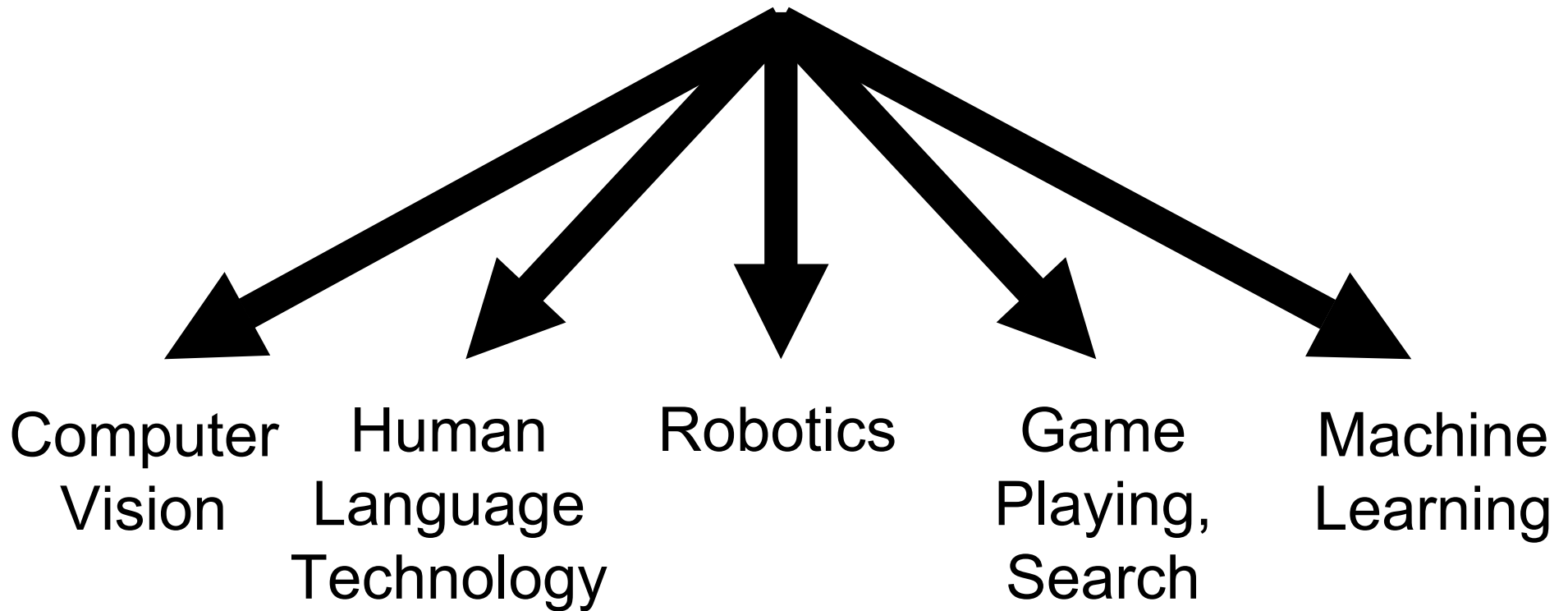
Artificial Intelligence



Reasons for Success

- Increasing knowledge
- Increasing power
- Machine learning

Artificial Intelligence

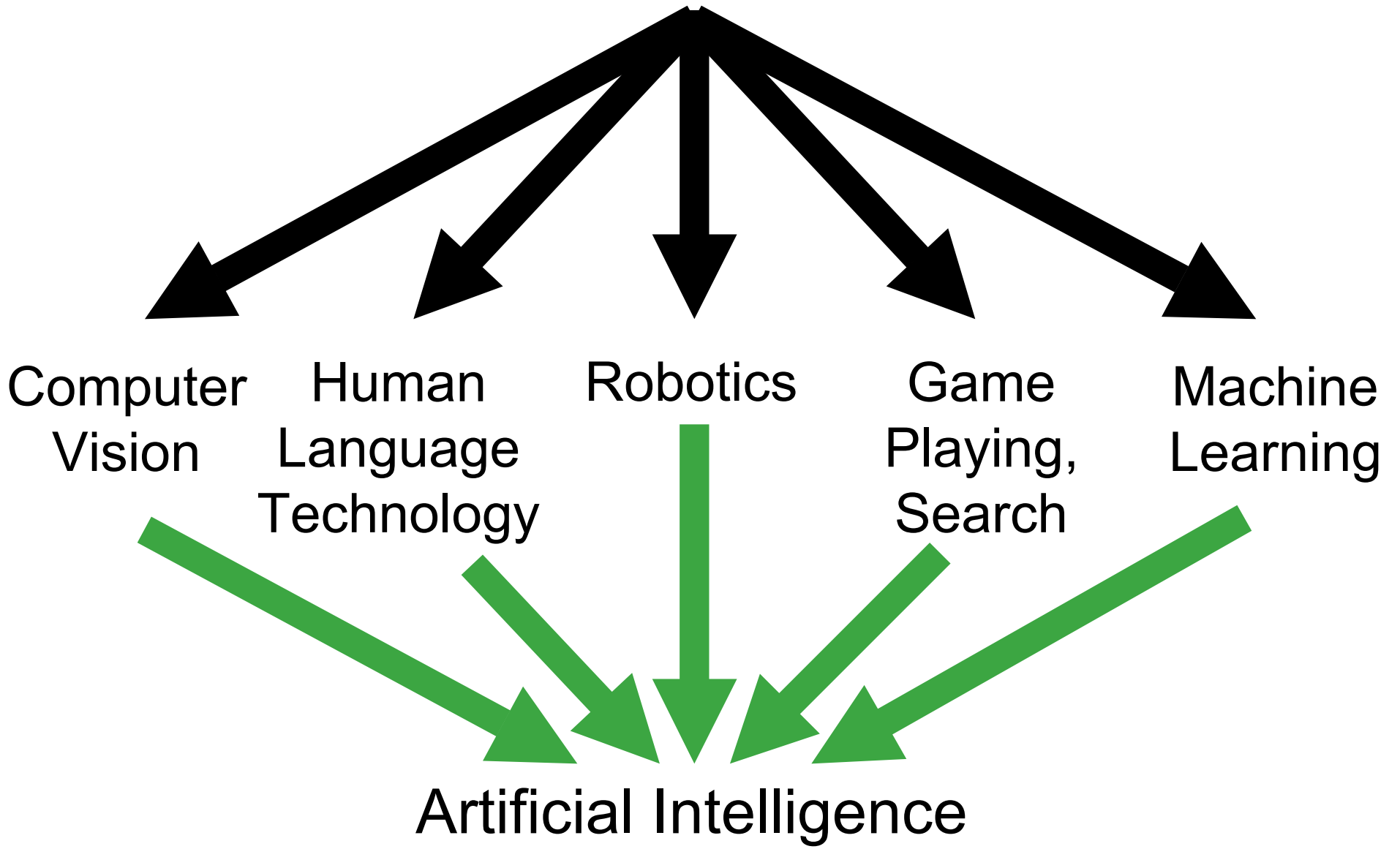


Collateral Successes

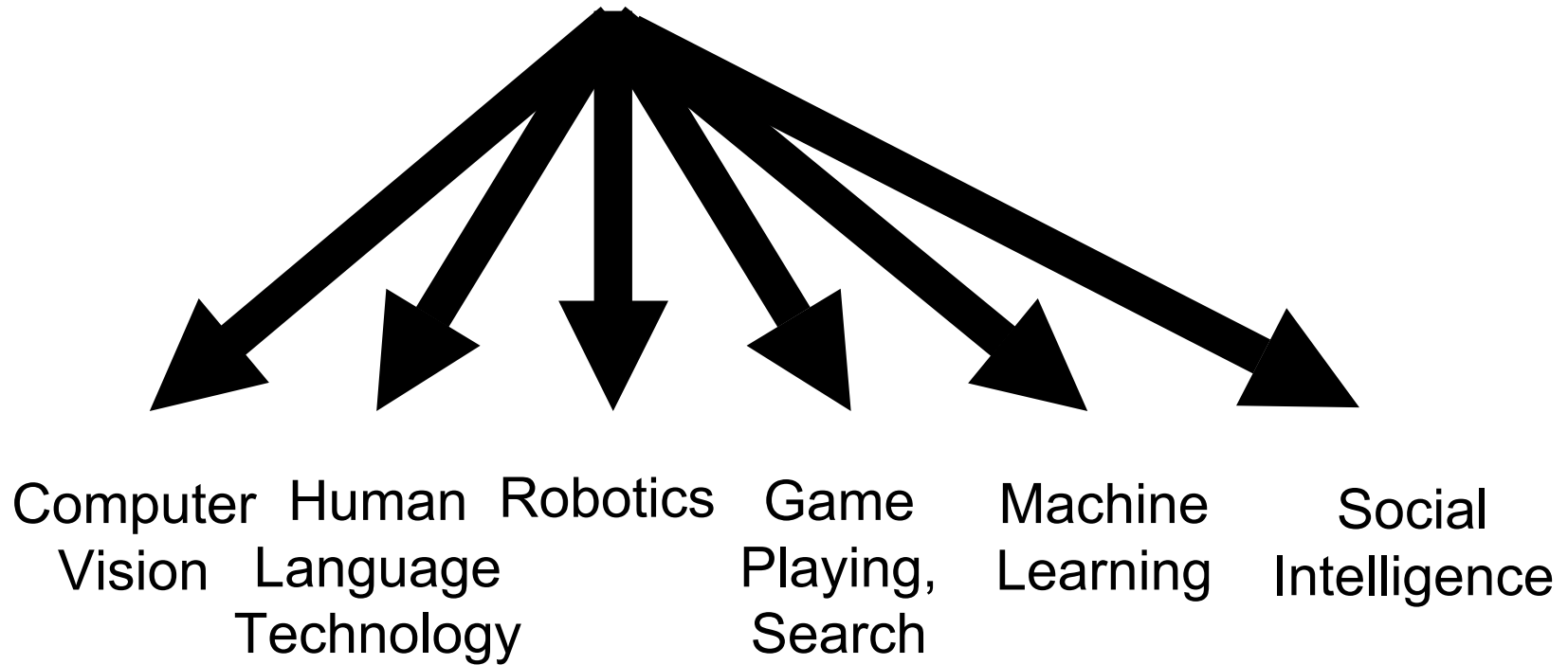
Time Sharing Data Mining Search Engines Recommender Systems Computational Photography



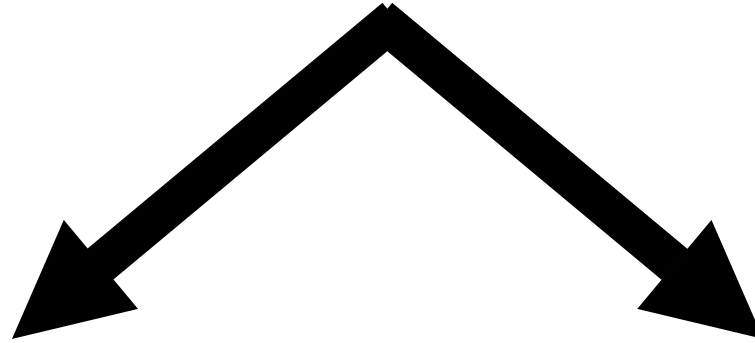
Artificial Intelligence



Artificial Intelligence

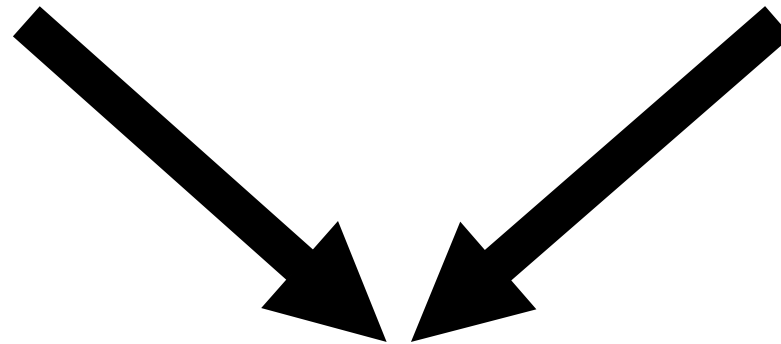


Artificial Intelligence



Biomorphic

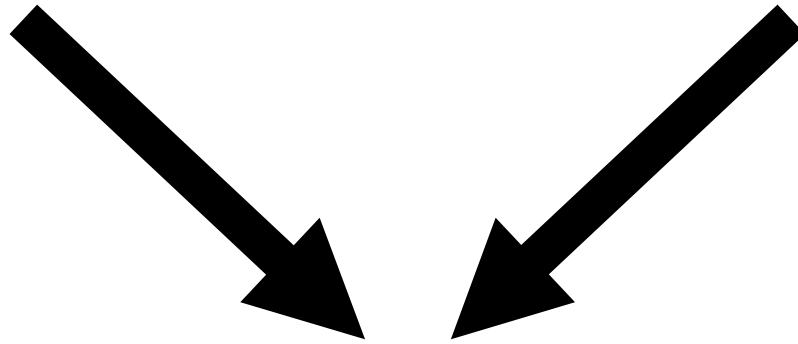
Non-Biomorphic



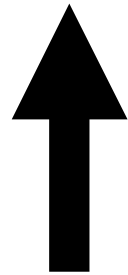
Artificial Intelligence

Artificial
Intelligence

Natural
Intelligence



?



Cyber-Physical Systems

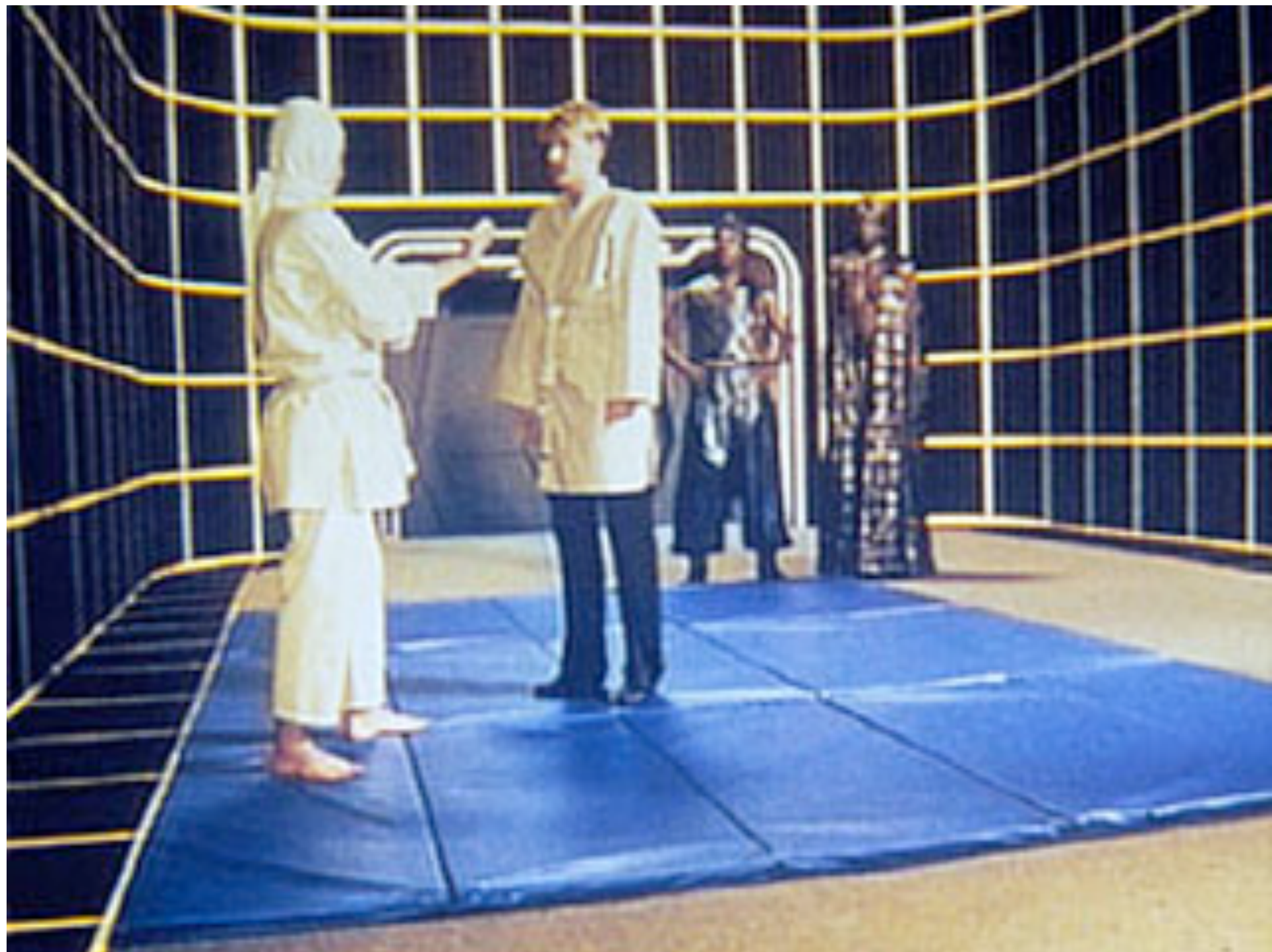


Thad Starner



Anthony Hornof





Augmenting Human Capabilities

- Physically
- Cognitively
- Socially

YAHOO!

Google™

Ask™
.com



eBay™



amazon.com®



SECOND
LIFE



Clickworkers
Collaborative Filtering
Collaborative Intelligence
Collective Intelligence
Crowdsourcing
Human-Based Computation
Recommender Systems
Reputation Systems
Social Commerce
Swarm Intelligence
Wikinomics
Wisdom of the Crowds

Future: Collaboration

- Across AI
- Across CS
- Across Disciplines
 - Social and Cognitive Sciences

Future: Telling the Story to Others

- Augmenting human capability
 - *Good and Bad*
- The Singularity
- Socially relevant AI

Future: Tantalizing Prospects

- **What is Intelligence?**
 - Natural
 - Artificial
 - Social

- **Making a difference**
 - Socially relevant challenges
 - Collateral successes