



**“Hype vs. Reality: A.I./Robotics and impact on employability” Roundtable**

## **IBM and the New Era of Computing**

**Susan Puglia,  
VP, Global University Programs and Vice-Chair, IBM Academy of Technology  
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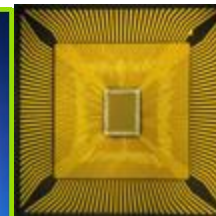
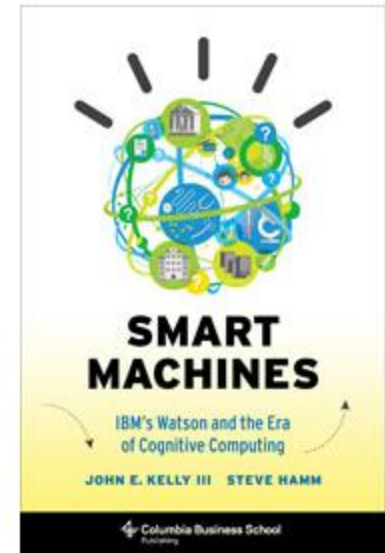
## Cognitive Systems

### ■ Watson – Analytic Cognition

- OpenPOWER  
Watson Architectures
- Reasoning, Logic & Planning
- Symbolic Processing
- Natural Language Processing
- Ranking of Hypotheses
- Knowledge Representations
- Domain-Specific Ontologies
- Information Storage/Retrieval
- Machine Learning

### ■ SyNAPSE – Intuitive Cognition

- Brain-Inspired Architectures
- Recognition, Sensing & Acting
- Pattern Processing
- Image & Speech Processing
- Ranking of Hypotheses
- Pattern Representations
- Domain-Specific Neural Nets
- Information Storage/Retrieval
- Machine Learning



# Opportunities in Cognitive Computing

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## More Skills Needed

- Core Text Search and Analytics
- Machine Learning
- Natural Language Processing
- Data Science, Data Mining, Information Retrieval
- Pattern Recognition
- Human Computer Interaction
- Sensing and Actuation
- Knowledge Representation and Reasoning
  - Symbolic & Visual



## Occupations Enhanced

- Doctors
- Financial Planners, Analysts
- Teachers
- Retail Marketers

## New Occupations

- Intelligence Augmentation Coaches/Consultants
- Machine “Teachers”
- Programmers for new cognitive languages

*Emerging Academic Fields* – Cognitive Computer Science, Cognitive Information Systems, Computational Neuroscience, Social Physics

# Developing T-Shaped Skills for Current and Future Economy

The skills needed for innovations to solve complex problems that leverage technological advances to create a Smarter Planet are in short supply



- “T-shaped” skills with **depth** in subject skills and **breadth** in workforce skills:
- Practical Experience
- Communications
- Teaming
- Management
- Innovation
- Entrepreneurship
- People Management
- Strategic Planning
- Problem solving via informatics
- Problem solving via social networks
- Flexible, adaptive and entrepreneurial
- Produced on demand

Business, Technology, and People Skills