“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

**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