The Higher Education CIO in the Cognitive Age

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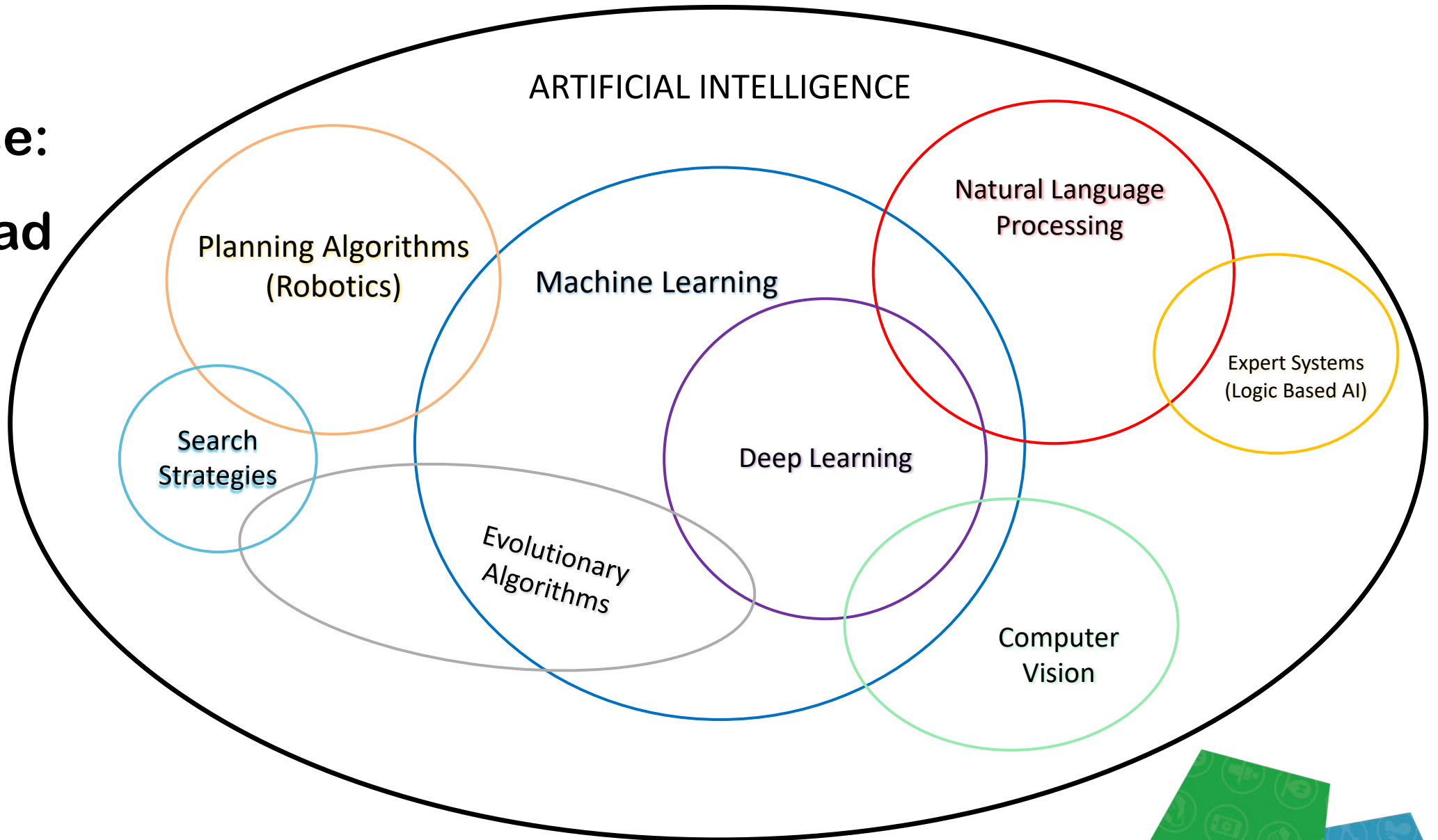
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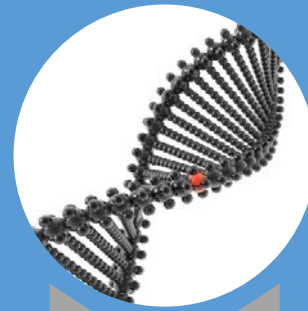**#BCNET2019**

Artificial Intelligence: AI is a broad category

*Source: Educause

ARTIFICIAL INTELLIGENCE

Planning Algorithms (Robotics)

Machine Learning

Natural Language Processing

Expert Systems (Logic Based AI)

Search Strategies

Deep Learning

Evolutionary Algorithms

Computer Vision

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AI in Medicine & Health
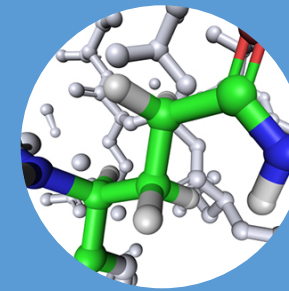
- Student Success – Early Alert
- Registrars Office – Admissions, Recruitment
- Digital experience – chatbots, q&a's

Game-Changing Technologies

Percentage of Respondents

	Higher Education (n = 172)		Top Performers (n = 230)		Typical Performers (n = 2,329)		Trailing Performers (n = 276)	
1	Artificial intelligence/machine learning	24%	Artificial intelligence/machine learning	40%	Artificial intelligence/machine learning	25%	Artificial intelligence/machine learning	24%
2	Industry specific	24%	Data analytics (including predictive analytics)	23%	Data analytics (including predictive analytics)	25%	Data analytics (including predictive analytics)	21%
3	Data analytics (including predictive analytics)	17%	Cloud (including XaaS)	12%	Cloud (including XaaS)	10%	Cloud (including XaaS)	14%
4	Cloud (including XaaS)	8%	Digital transformation	10%	Internet of Things	10%	Internet of Things	11%
5	Digital transformation	8%	Mobile (including 5G)	7%	Digital transformation	9%	Digital transformation	7%
6	ERP	7%	RPA	6%	Mobile (including 5G)	6%	Industry-specific	5%
7	CRM	5%	Internet of Things	6%	Automation	5%	Business intelligence	5%
8	Immersive experience	5%	Blockchain	5%	Blockchain	4%	Automation	5%
9	Internet of Things	4%	Automation	3%	Industry-specific	4%	Blockchain	5%
10	Business intelligence	3%	Information technology	3%	Business intelligence	3%	Mobile (including 5G)	5%

Base: All answering, excluding prefer not to answer, n varies by segment
Showing the 10 most common answers per segment, coded open-text responses, multiple responses allowed.
Q: Which technology area do you expect will be a "game changer" for your organization?
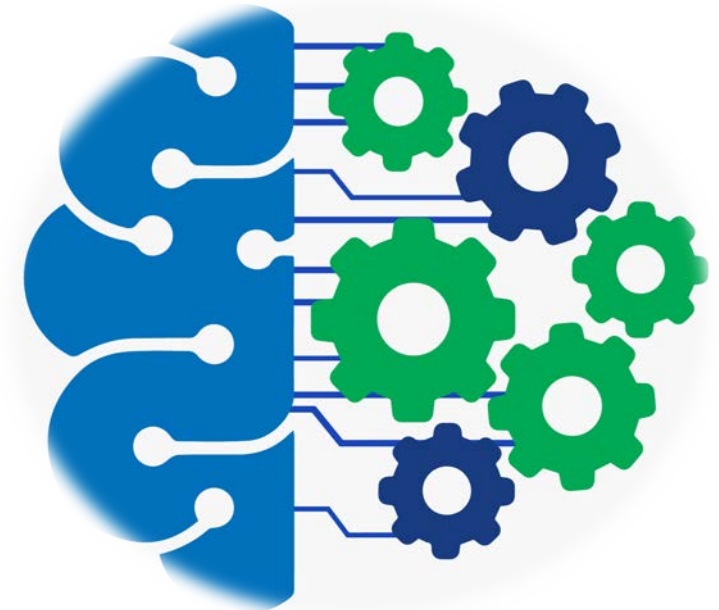ID: 368225

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Image source: https://www.recordedfuture.com/machine-learning-cybersecurity-applications/

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Framework for Implementation of AI

Business Capabilities/Opportunities

- Bottlenecks, scaling challenges, capacity building
- Collaborative intelligence
- Prediction, decision enhancement
- Personalization
- Enhanced customer service
- Fraud detection
- Image and speech recognition

Technologies

- Robotics and cognitive automation
- Cognitive insight
- Cognitive engagement

"Cognitive systems perform tasks, not jobs" [1]

Implementation Considerations

- Scaling up
- Integrations
- Immature technologies
- Low hanging fruit vs. moon shot
- Division of labour between human and AI
- New job categories
- Lifecycle management of algorithms

Role of the CIO

- Choose the right technologies
- Align to digital and business strategy
- Develop a portfolio of projects
- Assess impacts – Cognitive Work Redesign
- New policies
- New/changed risks
- Change leadership

SOURCES: [1] "Artificial Intelligence for the Real World" by Thomas H Davenport and Rajeev Ronanki, Harvard Business Review Jan-Feb 2018 Issue. [2] "The Jobs that Artificial Intelligence Will Create" by H. James Wilson et. al, MIT Sloan Management Review Summer 2017 Issue. [3] "The Parts of Customer Service That Should Never Be Automated" by Ryan W Buell, Harvard Business Review online, Feb 18, 2018. [4] "How CIO's Can Analyze the Strategic Possibilities of Artificial Intelligence" by Jorge Lopez, Gartner, Jan 2018. [5] "What to Expect from Artificial Intelligence" by Ajay Agrawal, Joshua S. Gans, Avi Goldfarb, MIT Sloan Management Review Spring 2017 Issue. [6] "Stitch Fix's CEO on Selling Personal Style to the Mass Market" by Katrina Lake, Harvard Business Review May 2018 Issue. [7] "Algorithms Need Managers Too" by Michael Luca et. al., Harvard Business Review Jan-Feb 2016 Issue. [8] "Collaborative Intelligence: Humans and AI Are Joining Forces" by James Wilson and Paul R. Daugherty, Harvard Business Review July-August 2018 Issue.