



Overview of Artificial Intelligence (AI) at NASA Goddard

Jacqueline Le Moigne

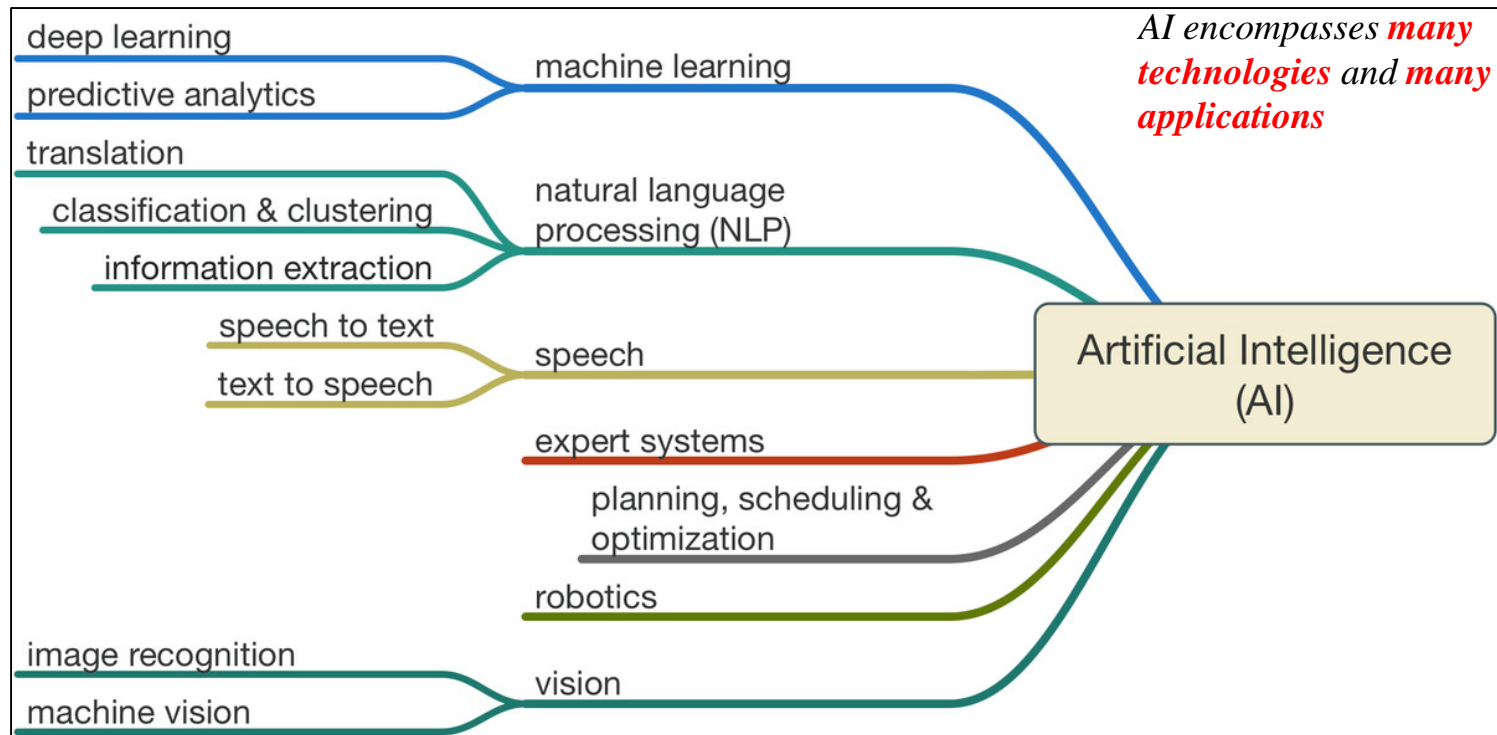
2018/10/29



What is Artificial Intelligence?

A few definitions:

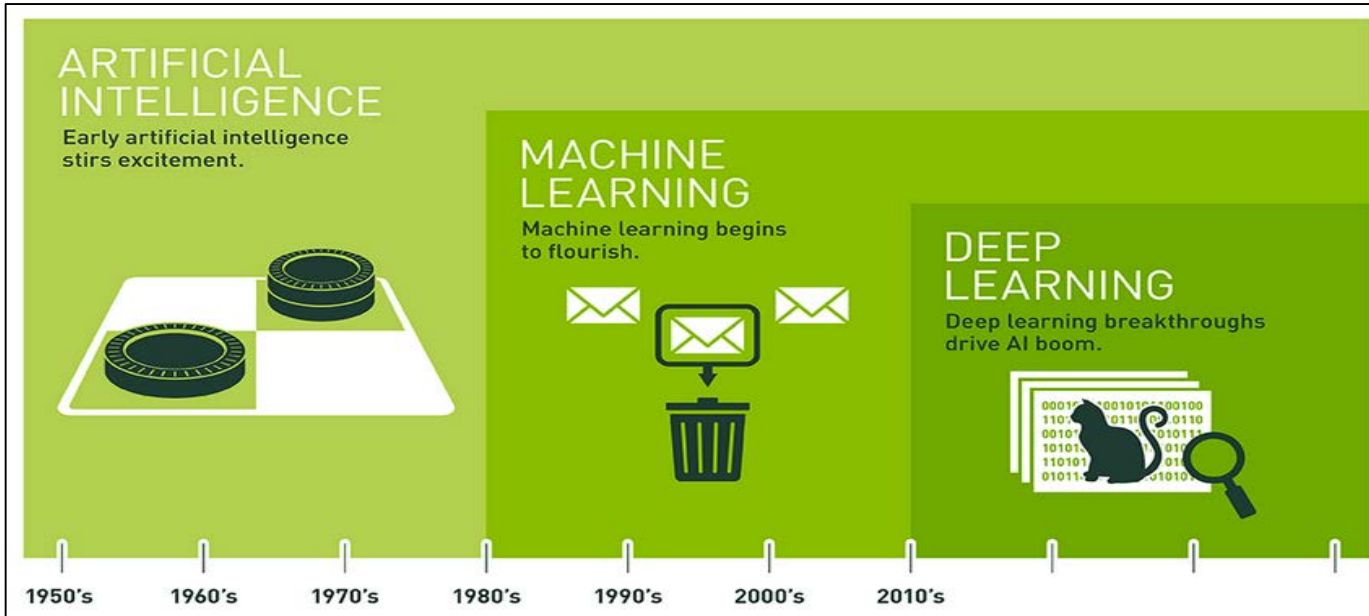
- *Artificial Intelligence (AI)* covers the development of the framework and of the technologies that enable a machine to perceive, reason, plan, act and learn both rationally and humanly.
- *Machine Learning (ML)* covers the sub-field of AI dealing with a machine capable of learning rationally and humanly.
- *Deep Learning (DL)* is a sub-field of Machine Learning dealing with very large Artificial Neural Networks including larger numbers of layers and of neurons, trained with massive amounts of data.



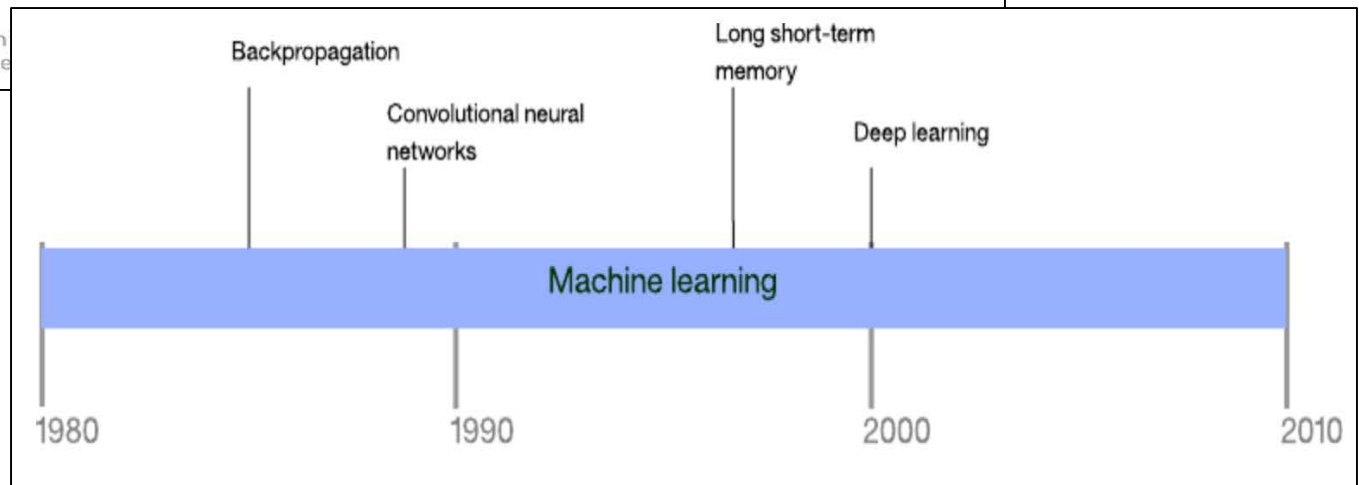


Artificial Intelligence and Machine Learning

From: <https://blogs.nvidia.com/blog/2016/07/29/whats-difference-artificial-intelligence-machine-learning-deep-learning-ai/>

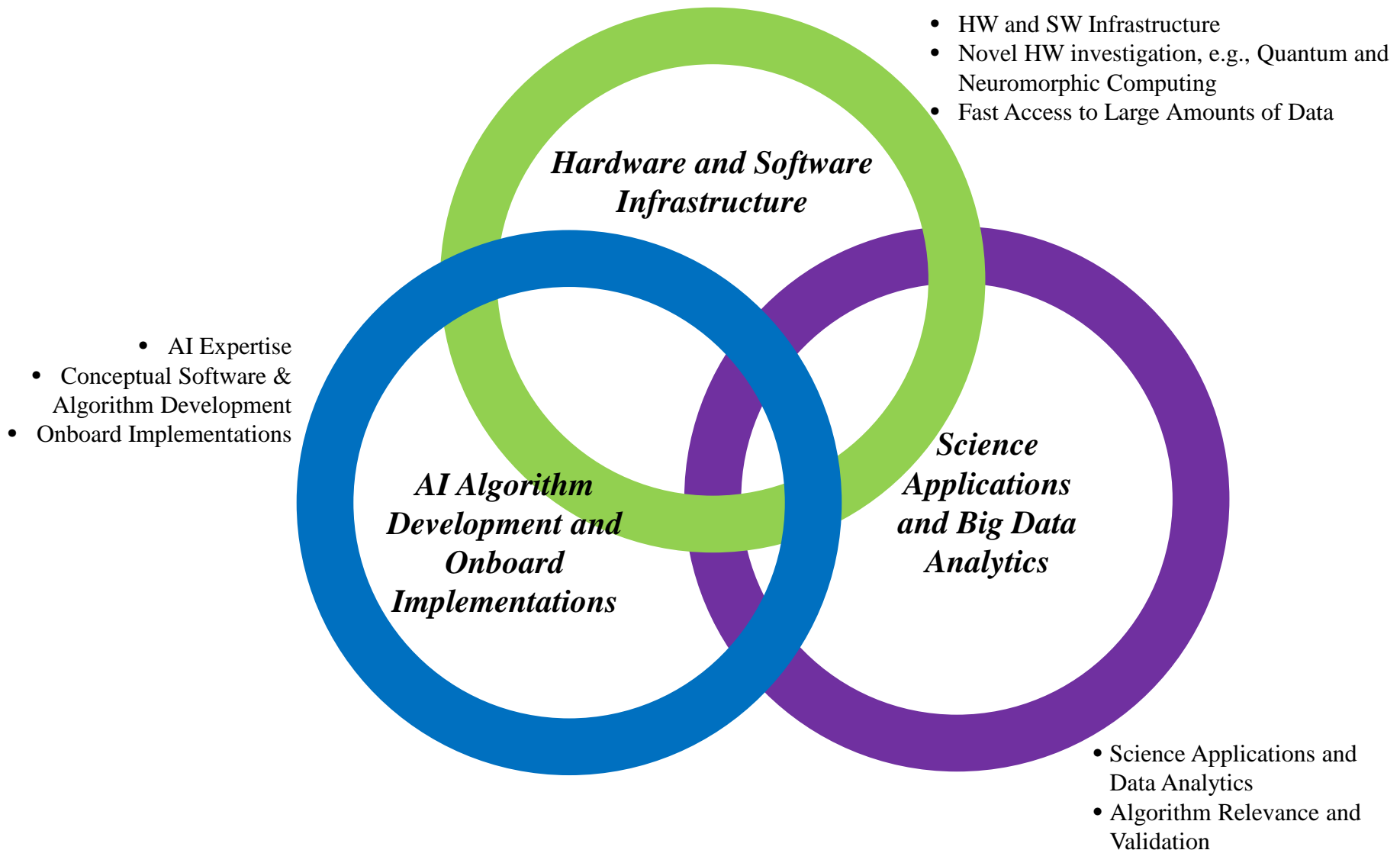


Since an early flush of optimism in deep learning, a subset of machine





AI Strategy for NASA Applications at Goddard





Collaborations for Successful AI

Business Insider: “Facebook’s chief scientist says that Silicon Valley needs to work more closely with academia to build the future of Artificial Intelligence”

Yann LeCun, Facebook Aug. 3, 2018, 12:59 PM

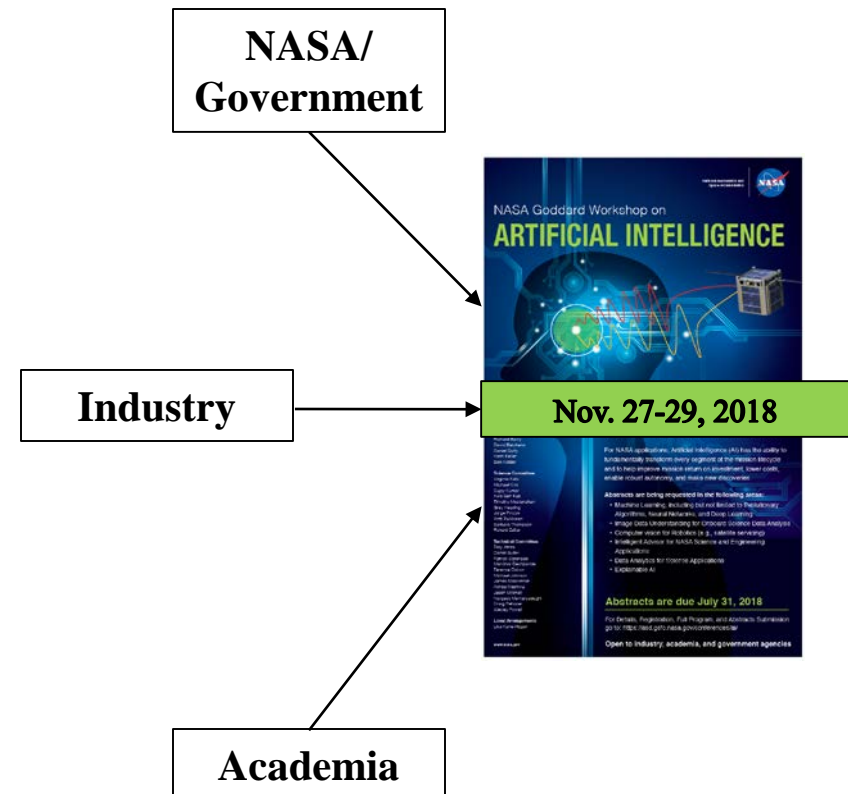
Opinion



Facebook's chief AI scientist Yann LeCun. Facebook

- Facebook's chief AI scientist, Yann LeCun, says that letting AI experts split their time between academia and industry is helping drive innovation.
- Writing for *Business Insider*, the executive and NYU professor argues that the dual-affiliation model Facebook uses boosts individual researchers and the industry at large.
- A similar model has historically been practiced in other industries, from law to medicine.

From: <https://www.businessinsider.com/facebook-yann-lecun-dual-affiliation-model-ai-experts-2018-8>





Today's Tour

<p>1:30-2:50 p.m.</p>	<p>Overview of AI at Goddard</p> <p>Jacqueline Le Moigne, <i>assistant chief for technology, Software Engineering Division, NASA Goddard</i></p> <p>Detecting Wildfires in MODIS Data Using Deep Neural Networks</p> <p>James MacKinnon, <i>computer engineer, NASA</i></p> <p>Virtual Reality for Science Applications</p> <p>Thomas G. Grubb, <i>AR/VR product development lead, NASA</i></p>
<p>2:50-3:05 p.m.</p>	<p>Travel to Building 28</p>
<p>3:05-4:10 p.m.</p>	<p>A Look at Learning in Earth Sciences</p> <p>Craig Pelissier, <i>computational scientist, NASA</i></p> <p>Science Data Visualization</p> <p>Horace Mitchell, <i>head, Scientific Visualization Studio, NASA</i>; Craig Pelissier, <i>computational scientist, NASA</i>; Lori Perkins, <i>computer engineer, Scientific Visualization Studio, NASA</i></p>
<p>4:10-4:20 p.m.</p>	<p>Travel to Building 29</p>
<p>4:20-4:45 p.m.</p>	<p>Autonomous and Tele-Robotics for Satellite Servicing</p> <p>Brian Roberts, <i>robotic technologist, Satellite Servicing Projects Division, NASA</i></p>
<p>4:45-5:45 p.m.</p>	<p>Depart NASA and head to the National Press Club</p>