Data Access & AI-Based Analysis of Environmental Data

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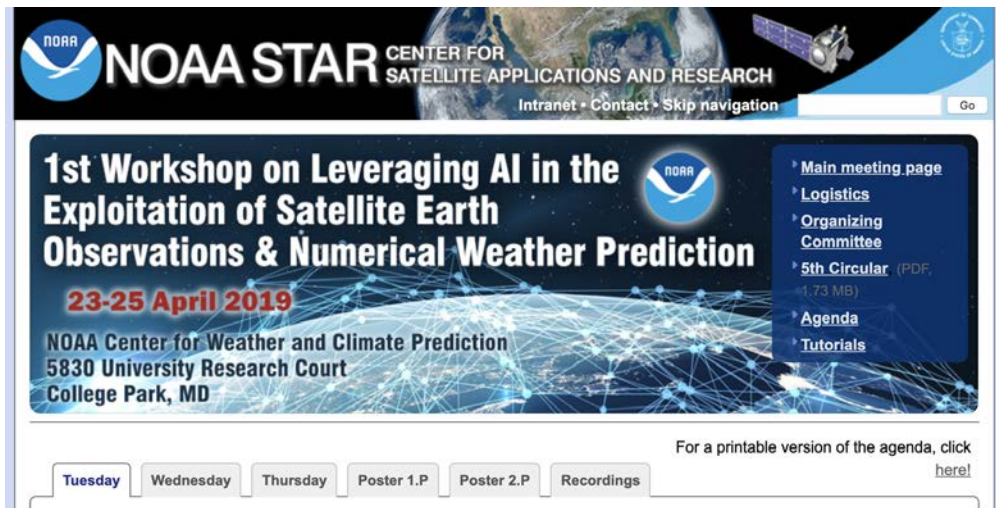
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RENCI and SAB Member

July 11, 2019
Seattle

Focus of Our WG Report on AI, Data Science & Its Applications to the NOAA Mission

1. Selected applications of AI and data science to the NOAA mission

2. Enabling technology, including the required data management and cloud computing infrastructure,

3. Issues around preparing NOAA data resources to be AI and data science "friendly." For example, how to lower the cost and effort required for data to be analyzed with AI and data science applications and services.

4. How might AI and data science accelerate NOAA's economic impact and contribute to an increase in US competitiveness?

NOAA Workshop on AI (1 of 2)

April 23-25, 2019

- On April 23-25, 2019 NOAA held a three day workshop on AI and its application to **satellite earth observations** and **numerical weather prediction**.
- Over 40 technical talks were presented, including 11 invited talks.
- 49 Posters were presented in two sessions.

NOAA Workshop on AI (2 of 2)

- It's important to note that these were not general talks on potential AI opportunities, but rather technical talks about the applications of AI to problems of interest to NOAA.
- Invited speakers from academia, industry & government

https://www.star.nesdis.noaa.gov/star/meeting_2019AIWorkshop.php

Next Steps

1. Discussions with DAARWG about brief report on:
   a. How are we going to make analysis-ready datasets?
   b. How to re-tool how people work in this area?
   c. What are the right questions to ask, pathways, etc.?
   d. What is the best approach to sharing training data?
2. Request to NOAA AI Working Group for a short report and a briefing at a future SAB meeting on the topic of AI
   a. What NOAA missions would AI have the biggest impact?
   b. What are some efforts to capture and share knowledge across NOAA?
   c. What is the technology readiness to use AI and data science?
3. Learning about NOAA's future plans to put additional NOAA data into the cloud and its plans to share this data with broader research community

The National Artificial Intelligence Research and Development Strategic Plan: 2019 Update

THE NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN: 2019 UPDATE

A Report by the
SELECT COMMITTEE ON ARTIFICIAL INTELLIGENCE
of the
NATIONAL SCIENCE & TECHNOLOGY COUNCIL

JUNE 2019
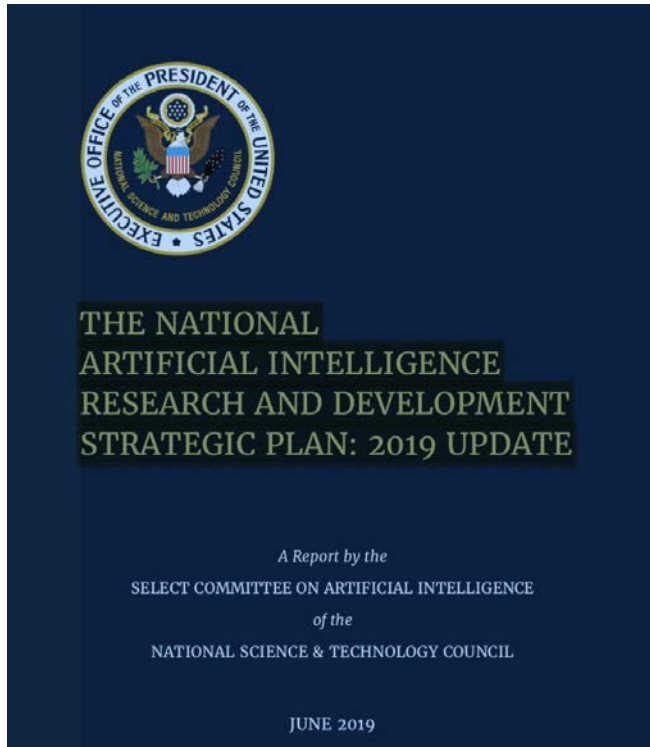
Strategy 1. Make Long-term investments in AI Research

Strategy 2. Develop effective methods for human-AI collaboration

Strategy 3. Ethical, Legal & societal implications

Strategy 4. Safety and security of AI systems

Strategy 5. Develop shared public datasets

Strategy 6. AI standards and benchmarks

Strategy 7. Workforce needs

Updated June 21, 2019

Common Path as Federal Agencies Explore AI

Phase 1. Agency puts some relevant data in large scale private, public or hybrid cloud computing infrastructure

Phase 2. Begin to build internal and external user community that leverages available AI and data science frameworks (TensorFlow, Keras, PyTorch, SciPy, Pandas, etc.) and computational environments (cloud workspaces, Jupyter notebooks, etc.) to improve current approaches and devise new ones.

Phase 3. Develop specialized expertise that develops application and agency specific frameworks that go beyond the current state of the art.

Status: NOAA is making progress with Phase 1 with the Big Data Program and the April Workshop shows the community developing to support Phase 2.

Questions and Discussion