# Human-in-the-loop for Machine Learning/Data Analytics Workflows

First Presentation

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- Motivation
- Preliminary Plan
- 3 Literature Review
- Motable Literature
- 6 Preliminary Goals
- 6 Some Questions/Concerns

- Motivation
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- 4 Notable Literature
- 5 Preliminary Goals
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 Want to investigate human dynamics topics related to Machine Learning/Data Analysis (ML/DA) workflows.

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- Bigger theme of interest is the collaboration between human and machine.
- Got the interest when briefly participate in a research project about human-in-the-loop in new Air Traffic Management systems.
- Some of the concepts in these systems can be applied in the ML/DA workflows (e.g. trust, level of automation analysis framework [1]).

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- Suggest and develop the concepts for the improvements (a proof of concept as a software may not fit in the scope of this course).

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- Based on the literature review, identify one area to investigate further.
- Identify potential improvement(s) in that area.
- Suggest and develop the concepts for the improvements (a proof of concept as a software may not fit in the scope of this course).
- Write and present results.

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#### Literature Review

- AutoML Systems [2] [3] [4]
- Human-in-the-loop (HITL) pipeline design, framework, survey, human dynamics
  - ML HITL Pipelines/Frameworks [5] [6] [7] [8]
  - Data HITL Pipelines/Frameworks [9]
  - Survey, book about HITL in ML/DA Pipelines [10] [11] [12] [13]
  - Human dynamics [14]
- Others (opinion, personal perspective) [15] [16]

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 A survey on active learning and human-in-the-loop deep learning for medical image analysis,, S. Budd, E. C. Robinson, and B. Kainz

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- Human-in-the-loop machine learning, R. Munro
- Human-in-the-loop AI: Requirements on future (unified) air traffic management systems, J. Lundberg et al.

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# Preliminary Goals

• Understand the current state-of-the art in HITL Machine Learning and write a short report and some potential improvements.

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- Or compare some systems of HITL Machine Learning (pros and cons).
- Or something different.

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# Some Questions/Concerns

• The topic seems a little bit theoretical.

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- Since time to conduct experiment involving human can be long and may not fit into the scope of the course.

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- The topic seems a little bit theoretical.
- Since time to conduct experiment involving human can be long and may not fit into the scope of the course.
- Same as a proof of concept in software form.

## References I



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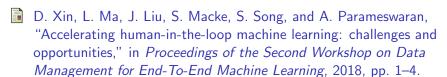


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