

# Classification of Shared Tasks used in Teaching

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**ITiCSE, July 2024**

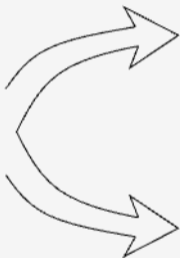


# Shared Tasks

## The Literal Meaning



Problem



Where is the learning?

- ▶ Solving the problem
- ▶ Understanding other solutions

Different people come up with different solutions.



- ▶ Alternative format of scientific exchange
- ▶ Possible form:
  - ▶ Task is published on a web site
  - ▶ Participants register
  - ▶ Participants submit
    - ▶ Solution code
    - ▶ Paper describing the approach
  - ▶ Submissions are automatically evaluated and ranked in a leaderboard.
  - ▶ Solutions will be presented and discussed at a conference.



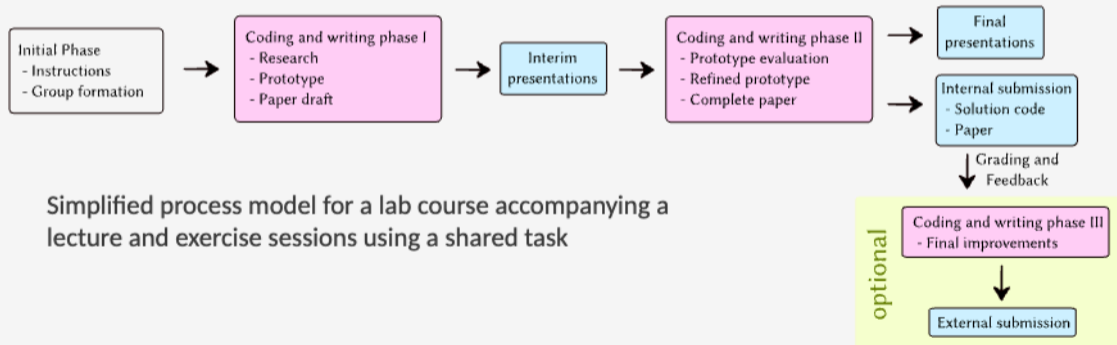
# The initial idea

## Shared Tasks as Tutorials: A Methodical Approach



Elstner et al.

“Shared Tasks as Tutorials: A Methodical approach”  
presented at EAAI 2023



Simplified process model for a lab course accompanying a lecture and exercise sessions using a shared task



**Spoiler**

“washing [them]”

**Clickbait tweet**

 **Lifehacker**  @lifehacker

How to keep your workout clothes  
from stinking: [lifehac.kr/57Y0uEZ](https://lifehack.kr/57Y0uEZ)



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@lifehacker

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- ▶ provided artifacts:
  - ▶ Task description
  - ▶ Set up on TIRA
  - ▶ Test and training data set
  - ▶ Evaluator
  - ▶ Baseline code
- ▶ organizers support:
  - ▶ organizers proactively approached instructors
  - ▶ kickoff meeting
  - ▶ technical support
- ▶ approach:
  - ▶ groups of 5
  - ▶ interim presentations by student teams
  - ▶ conceptual feedback by instructors



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▶ approach:

- ▶ groups of 5
- ▶ interim presentations by student teams
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I like the idea,  
but I can't find any  
shared task events that  
fit our schedule.



# Authorship verification from PAN 2020



<https://github.com/pan-webis-de/pan-code/tree/master/clef20/authorship-veri>


Actions Projects Security Insights

pan-code / clef20 / authorship-verification

phoerious Fix F\_0.5 calculation

Name	Last commit message
..	
datasets/pan20-authorship-verification-test	ground truth
img	figs in SVG format
submissions	participant submissions
README.md	concise readme file
analysis.ipynb	python notebook
collect.ipynb	python notebook
metrics.xlsx	spreadsheets
pan20-authorship-verification-baseline-compr...	Add files via upload
pan20-verif-baseline.py	1st version distance-based baseline

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- ▶ Task: Given 2 texts detect if they are written by the same author
- ▶ Audience: Computer Science Master students
- ▶ Provided material:
  - ▶ Task description
  - ▶ Datasets
  - ▶ Evaluator
  - ▶ Baseline code
- ▶ Effort to prepare the shared task:
  - ▶ Solution code template
  - ▶ Dataset preparation
- ▶ Submission: Upload solution to TIRA
- ▶ Evaluation: Done automatically by TIRA

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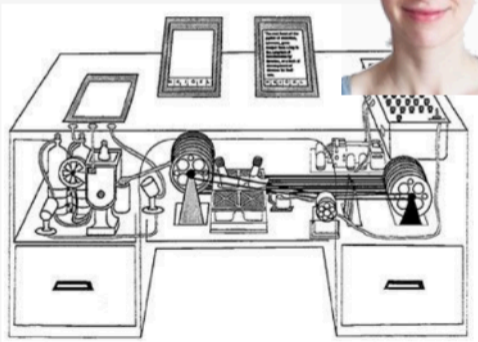
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- ▶ Task: Given the same...
  - ▶ Audience...
  - ▶ Provided:
    - ▶ Task description
    - ▶ Dataset
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  - ▶ Effort to prepare the shared task:
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  - ▶ Submission: Upload solution to NPA
  - ▶ Evaluation: Done automatically by...
- But I can't find any shared tasks that match our teaching goals exactly.
- 

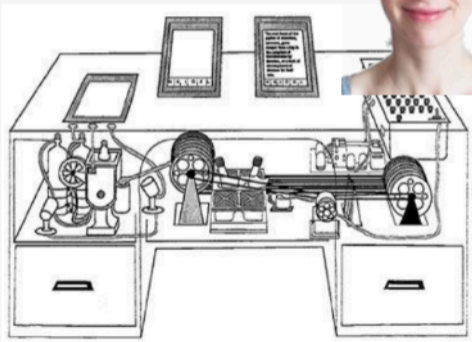
# Domain specific search engine



- Task: create a search engine for scientific papers on Information Retrieval research

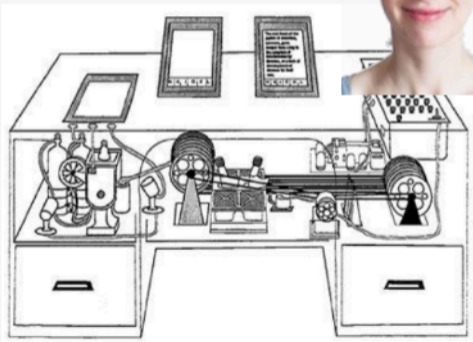


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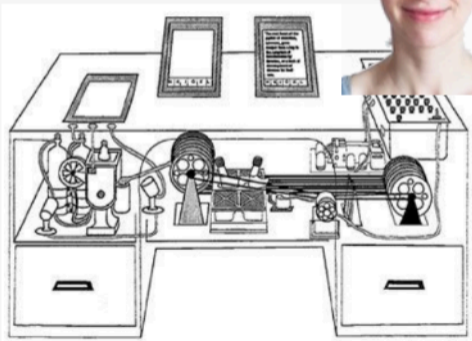
- ▶ Task: create a search engine for scientific papers on Information Retrieval research
- ▶ Lab class accompanying a lecture on Information Retrieval
- ▶ Approach:
  - ▶ Group work
  - ▶ 3 milestones
  - ▶ For each milestone: jupyter notebook with
    - ▶ Code
    - ▶ Code description
    - ▶ Reflection on the process

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- ▶ Task: create papers

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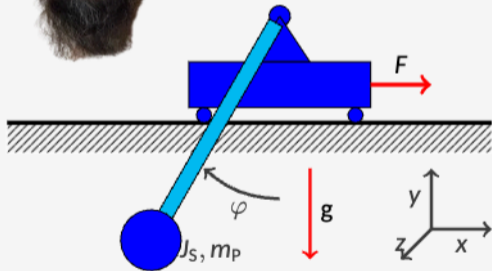
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- ▶ Reflection on the process

But this kind of task is too complex for our six hours lab course.

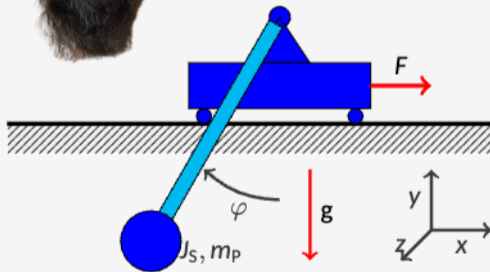


# Control System for a Movable Pendulum



- Task: Set up a control system for movable pendulum

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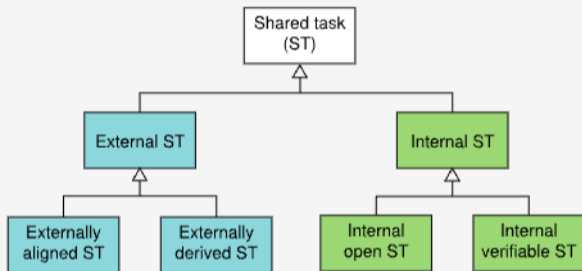


- ▶ Task: Set up a control system for movable pendulum
- ▶ Audience: Undergraduate students of engineering (mechatronics systems)
- ▶ Software: Open Modelica
- ▶ Provided material:
  - ▶ Task description
  - ▶ Simulation environment on Open Modelica
  - ▶ Video introducing software
- ▶ Course structure:
  - ▶ Introduction to software
  - ▶ 6h to complete the task on site

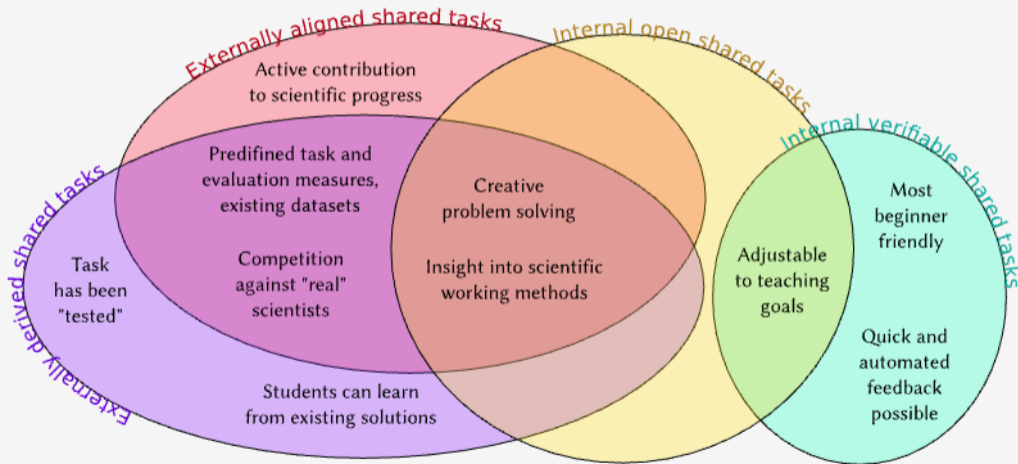
# Classification of Shared Tasks



- ▶ External shared task: created for the scientific community
- ▶ Internal shared task: created for teaching purposes
- ▶ Externally aligned shared task: uses an ongoing shared task
- ▶ Externally derived shared task: reuses an old shared task
- ▶ Internal open shared task: submitted solutions can be “good” or “not so good”
- ▶ Internal verifiable shared task: submitted solutions can be “correct” or “incorrect”



# Comparison





## Outlook

- ▶ So far data has been gathered on courses reported on in the paper.
- ▶ Further evaluation as well as collecting more data is work in progress.



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