JST CREST CYBORGCROWD
IMMEDIATE, UNITED, OPTIMIZED

*Asuyuki Morishima (U. of Tsukuba) *Keishi Tajima (Kyoto U.),
Itaru Kitahara (U. of Tsukuba), Munenari Inoguchi (U. of Toyama),
* Masaki Matsubara, Hidehiko Shishido (U. of Tsukuba)

YAHOO! JAPAN クラウドソーシング BETA

NIED 国立研究開発法人 防災科学技術研究所
National Research Institute for Earth Science and Disaster Resilience
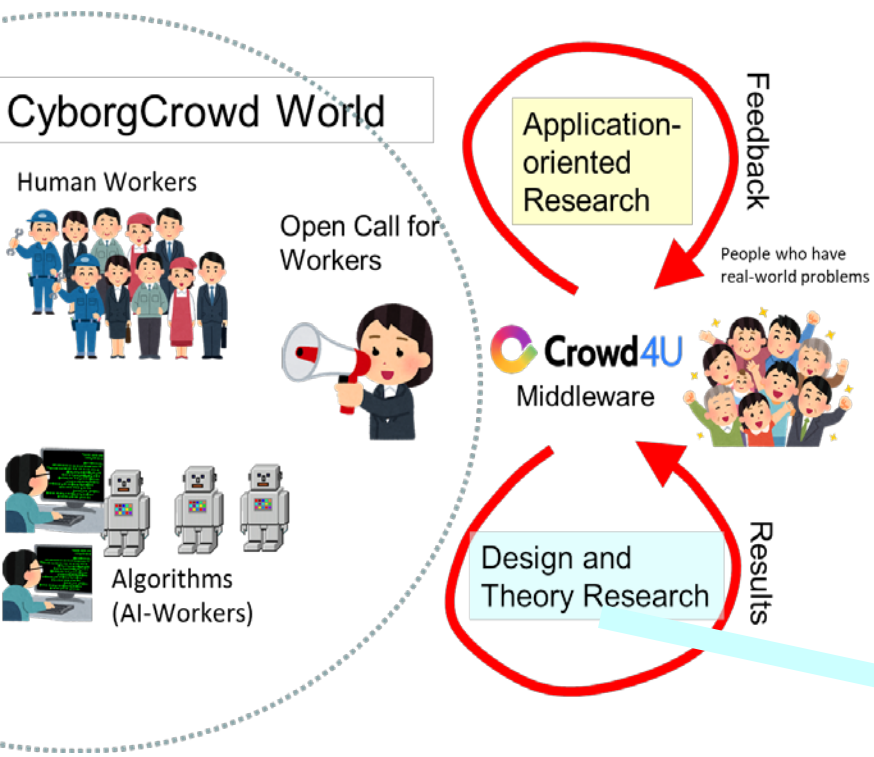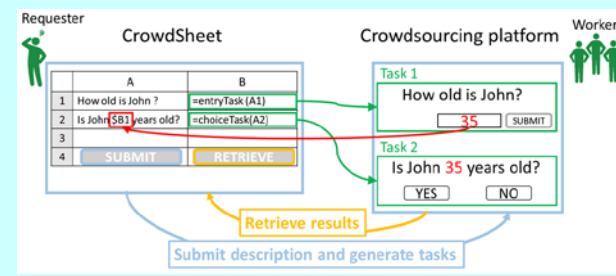
PASCO World's Leading Geospatial Group

- Japanese-government funded Project (three million dollars for five years)
- **Goal**: To develop fundamental technologies for the era we can access billions of both human and AI workers
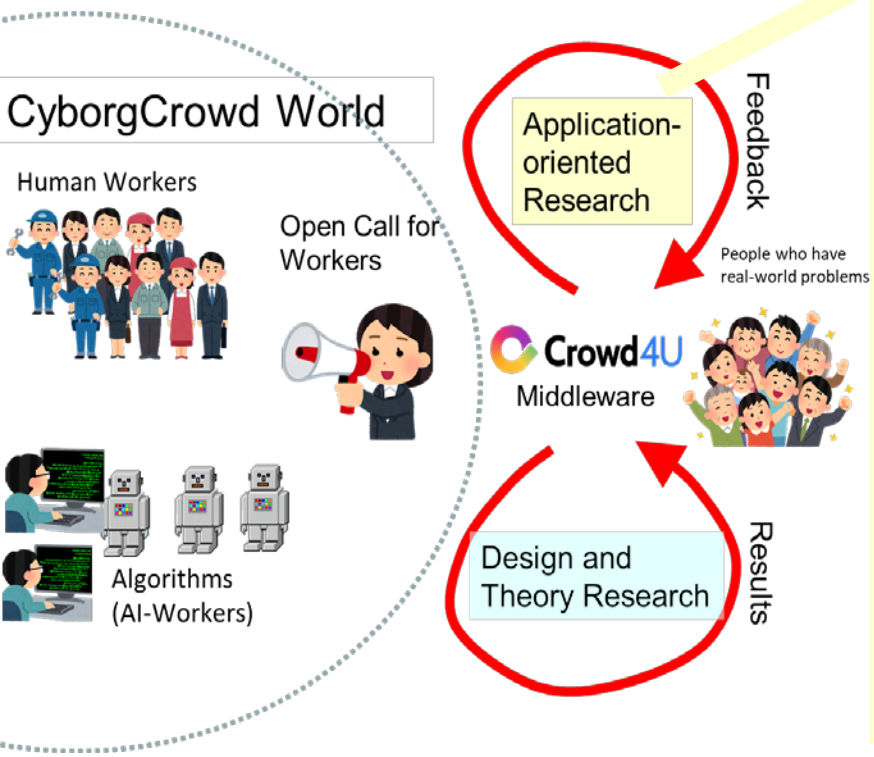- **Approach**: Take a middleware-centered action research

- **Immediate**: Develop tools to help ordinary users to develop and deploy solutions including dataflow immediately after the problem occurs

CyborgCrowd World

Human Workers

Open Call for Workers

Algorithms (AI-Workers)

Application-oriented Research

Feedback

People who have real-world problems

Crowd4U Middleware

Design and Theory Research

Results

Requester — CrowdSheet — Crowdsourcing platform — Worker

	A	B
1	How old is John ?	=entryTask(A1)
2	Is John $81 years old?	=choiceTask(A2)
3		
4	SUBMIT	RETRIEVE

Task 1
How old is John?
35   SUBMIT

Task 2
Is John 35 years old?
YES   NO

Retrieve results
Submit description and generate tasks

- **Unified**: Use the power of the resources regardless their types (humans, AIs, robots), abilities, places or the time they can join.
  https://youtu.be/QrOcYxQovHg
- **Optimized**: Develop a full declarative framework where users only specify their goals without the details of the solution

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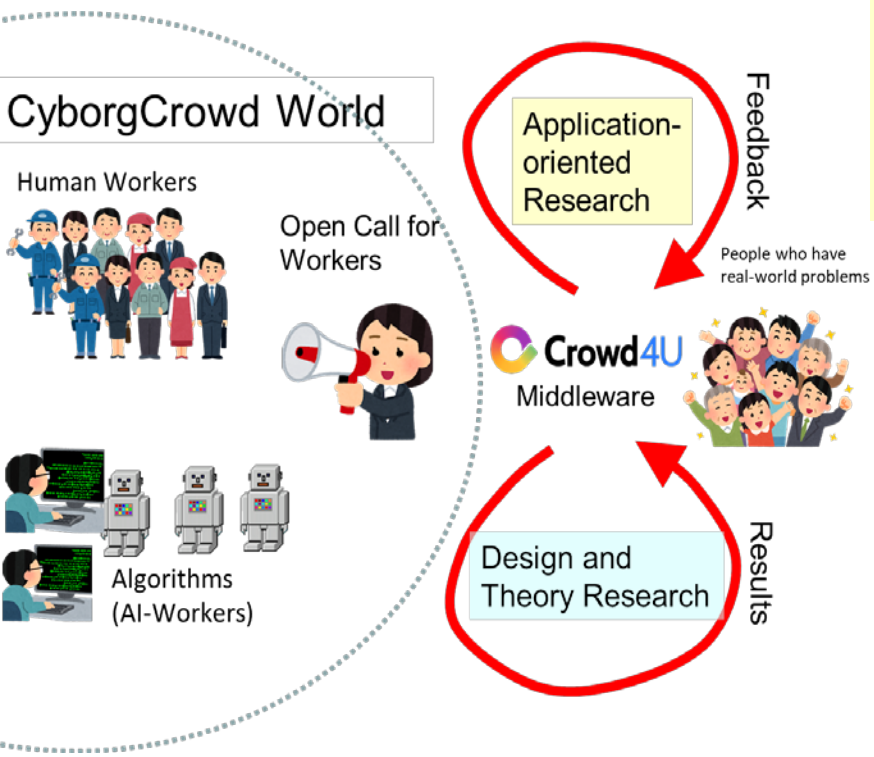
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- Cyber-Phisycal Natural Disaster Drill
- Made the session draft for VLDB 2018
- NDL project (Japanese "Library of Congress")
- Digital Archive for "Fukushima Futaba" at Japan 2011 disasters

We have connections to public organizations having real-world applications
https://www3.nhk.or.jp/lnews/niigata/20180701/1030003739.html

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What we can provide are:

P1. Tools and Middleware: We can demonstrate some of the tools developed in the CyborgCrowd project – Languages and Tools

P2. Open Platform - Opportunities for your algorithms to be used in the real-world applications

What we seek are:

CyborgCrowd World

Human Workers

Open Call for Workers

Algorithms (AI-Workers)

S1.
Feedback
Application-oriented Research
People who have real-world problems

P1. P2.
Crowd4U
Middleware

Design and Theory Research
Results

S2.

S1. Real-world Applications outside Japan We are seeking those who have real-world applications of crowdsourcing for which an international collaboration might be beneficial.

S2. Experts on ELSI (Ethical, Legal, Social Issues) We have started the discussion on ELSI in the CyborgCrowd world where crowd workers and AI workers cooperate. We are seeking experts who are familiar with these issues.