

WP2 AI- & HPC-Cross Methods at Exascale – Monthly Meeting

Prof. Dr. – Ing. Morris Riedel et al.

School of Engineering & Natural Sciences, University of Iceland

2022-02-28, RAISE WP2 Monthly Meeting February 2022, Online



@ProfDrMorrisRiedel



@Morris Riedel



@MorrisRiedel



@MorrisRiedel



<https://www.youtube.com/channel/UCWC4VKHmL4NZgFfKoHtANKg>



morris@hi.is

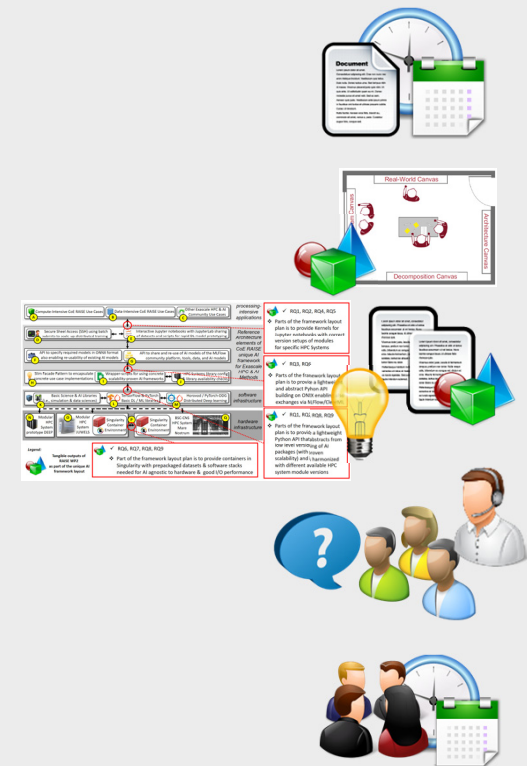


WP2 February Meeting – Welcome & Agenda

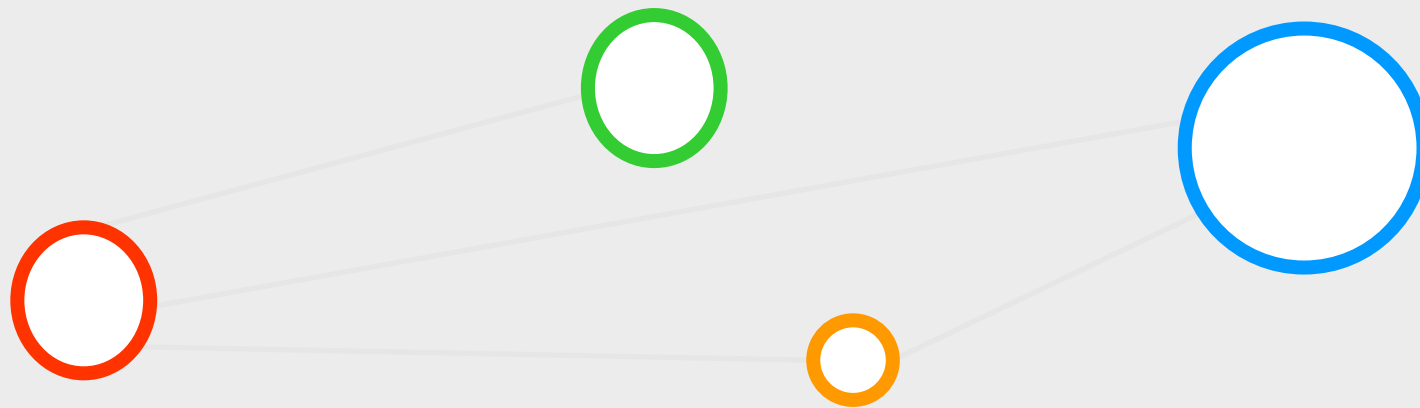


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Center of Excellence

1. Approval of minutes from Monthly Meeting January 2021
 - (All), ~5 Min
2. Review WP2 Status on Interaction Rooms
 - (Morris Riedel, Matthias Book, Helmut Neukirchen), ~15 Min
3. Realization of the SW Framework
 - (Morris & Andi et al.), ~10 Min
4. Status WP2 Seminar Plans
 - (Morris et al.), ~15 Min
5. Compelling Scoreboard Review & Next Steps
 - (All), ~15 Min



Agenda Item (1) – Minutes Approval – Meeting January 2021



Minutes Approval – Monthly Meeting January 2021

➤ Minutes available in BSCW

- <https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/3704758>
- **TBD(all): Any objections or additions/changes?**



Morris Riedel - RAISE WP2 - Issues

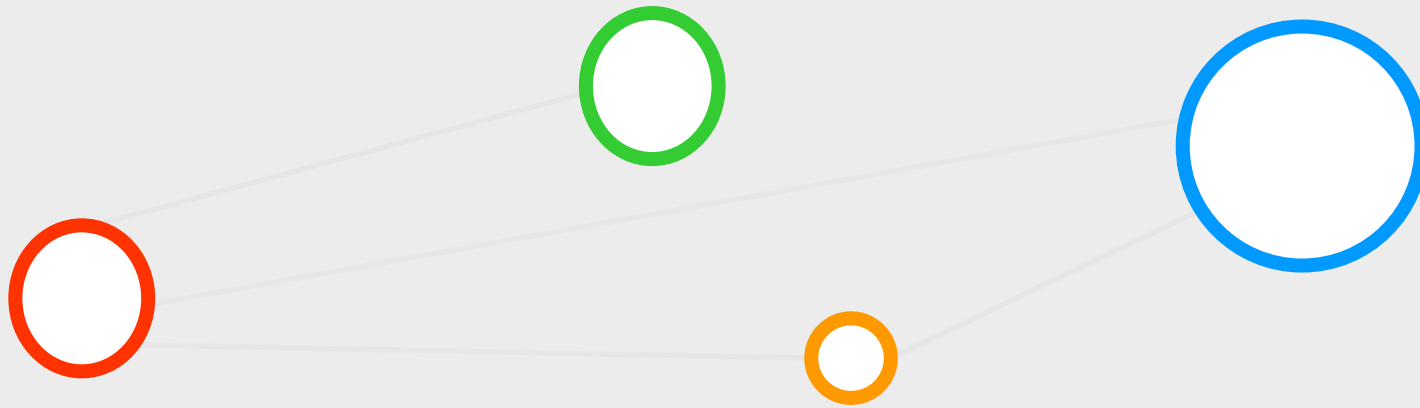
Open	Closed	All
Recent searches - Search or filter results...		
Due date - 1h		
Edit issues New issue		
B - Create Fact Sheet Task 4.4 Sound Engineering		
#21 - created 3 minutes ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated just now
B - Create Fact Sheet Task 4.3 Seismic Imaging		
#20 - created 8 minutes ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated just now
B - Create Fact Sheet Task 4.3 Manufacturing		
#18 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated just now
B - Create Fact Sheet Task 3.1 Turbulent Flow		
#17 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated 16 minutes ago
B - Create Fact Sheet Task 4.1 Fundamental Physics		
#16 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated 2 weeks ago
B - Create Fact Sheet Task 3.2 Clean Energy		
#14 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated 15 minutes ago
B - Create Fact Sheet Task 3.5 Coating		
#13 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated just now
B - Used Doodle for WP2 Monthly Meeting April 2021 Date & Time		
#12 - created 1 month ago by Morris Riedel	WP2 Monthly Meeting - April 2021	Apr 30, 2021
		updated 14 minutes ago
B - Create Fact Sheet Task 3.3 Reacting Flows & Task 3.4 Engine Design		
#11 - created 1 month ago by Morris Riedel	WP2 Fact Sheet Collection Completed	Apr 30, 2021
		updated 12 minutes ago
B - Used Doodle for WP2 Monthly Meeting May 2021 Date & Time		
#19 - created 11 minutes ago by Morris Riedel	WP2 Monthly Meeting - May 2021	May 31, 2021
		updated 11 minutes ago
B - Create WP2 Expertise Matrix Draft and Circulate for WP2 Review		
#7 - created 2 months ago by Morris Riedel	WP2 Expertise Matrix Exists	May 31, 2021
		updated 15 minutes ago

Slides & Materials from meeting 2021-07-22

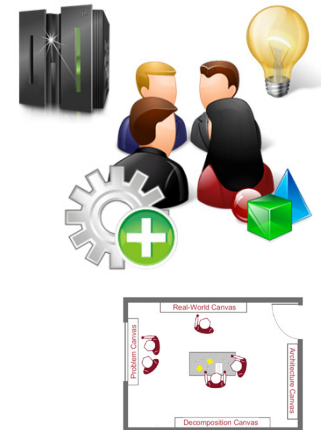
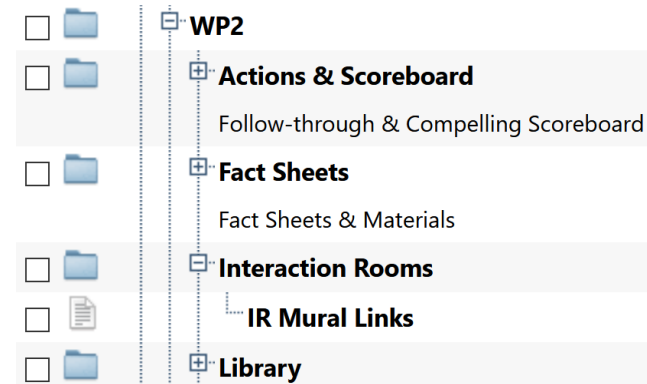
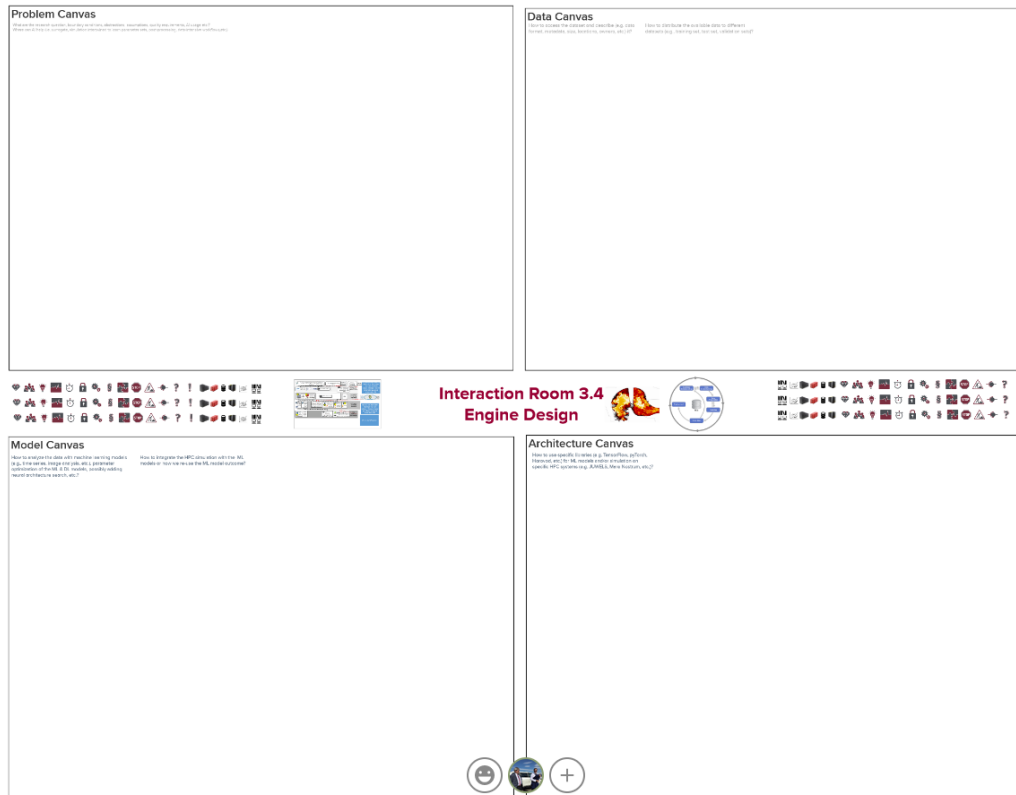
2021_08_30_Monthly_Meeting August 2021
Slides & Materials from meeting 2021-08-30
2021_09_30_Monthly_Meeting September 2021
Slides & Materials from Meeting 2021-09-30
2021_10_29_Monthly_Meeting October 2021
Slides & Materials from Meeting 2021-10-29
2021_11_26_Monthly_Meeting November 2021
Slides & Materials from Meeting 2021-11-26
2022_01_31_Monthly_Meeting January 2022
Slides & Materials from Meeting 2022-01-31
2022_01_31_CoE-RAISE-WP2-Monthly-Meeting-Riedel-v1.pptx
2022-01-31-Monthly-Meeting-January-2022-Minutes-v1
2022-01-31-Monthly-Meeting-January-2022-Minutes-v1



Agenda Item (2) – Review WP2 Status on Interaction Rooms RAISE Center of Excellence



Interaction Rooms via MURAL Boards & Milestone Inputs

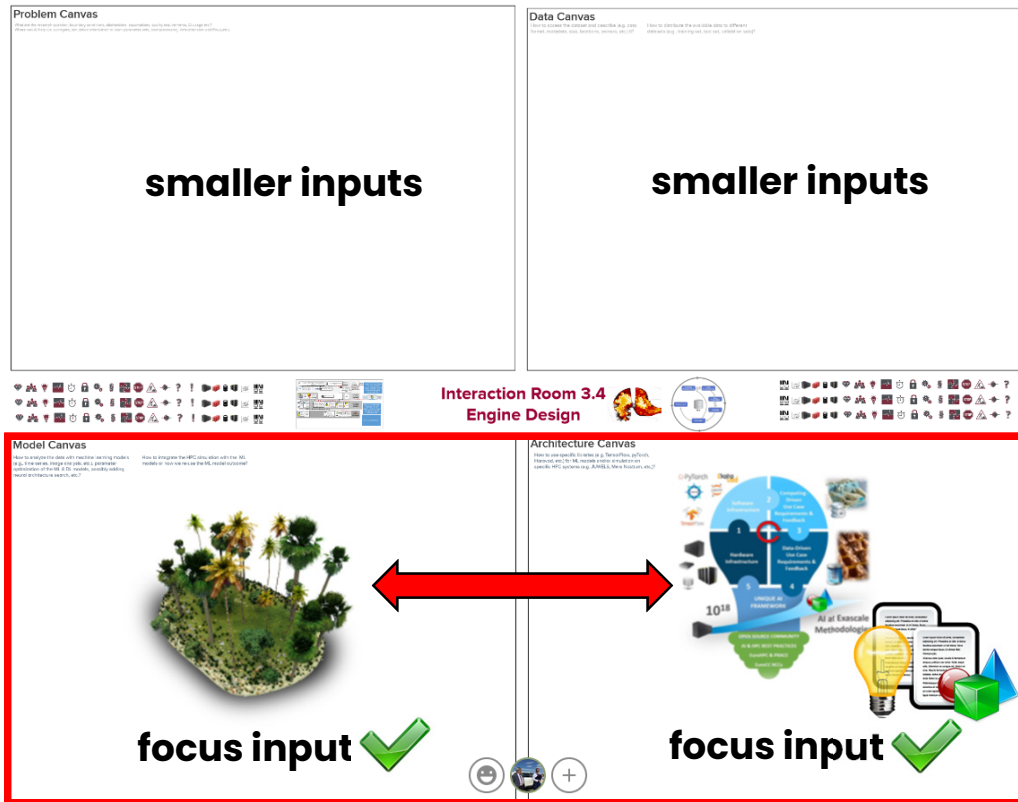


IR Mural Links

- IR3.1 Turbulent Flow: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377866397/8613c384d54f66fb5e78599ff307a4ce8a9090c0?sender=u15c3008bb41d6628a5bb5701>
- IR3.2 Clean Energy: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377887905/cb44cca3eed3bb9964fbfa36a1f6b1bfcc085f?sender=u15c3008bb41d6628a5bb5701>
- IR3.3 Reactive Flows: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377959022/0c363886f24833eeb19b025d87324b57fd50e2db?sender=u15c3008bb41d6628a5bb5701>
- IR3.4 Engine Design: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377976343/8d7aba6be09af3b2fd305d2f709c53661ac889d?sender=u15c3008bb41d6628a5bb5701>
- IR3.5 Coating: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377991014/7a5d7e1ea230178342d1e1d4a84d656d9055d52?sender=u15c3008bb41d6628a5bb5701>
- IR4.1 Fundamental Physics: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378007335/6f0d5285feaec3eaf515bd6676e84d8b4879d39?sender=u15c3008bb41d6628a5bb5701>
- IR4.2 Seismic Imaging: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378023838/a0b9503abb837ac3e28a4bb8d9adbec33874998?sender=u15c3008bb41d6628a5bb5701>
- IR4.3 Manufacturing: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378038069/93df6fa7a41093f4eaae7bc9d72979dc2ba42b9d?sender=u15c3008bb41d6628a5bb5701>
- IR4.4 Sound Engineering: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378050431/b5fa12219002404059f90a4bbb0101fa379a8503?sender=u15c3008bb41d6628a5bb5701>

- TBD(all): Do people use the MURAL boards (e.g., Task 3.4 is pretty empty but with Task 3.3)?
- <https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/3591551>

MURAL Board contents for Deliverables & Milestones



- ☐ WP2
- ☐ **Actions & Scoreboard**
Follow-through & Compelling Scoreboard
- ☐ **Fact Sheets**
Fact Sheets & Materials
- ☐ **Interaction Rooms**
IR Mural Links
- ☐ **Library**



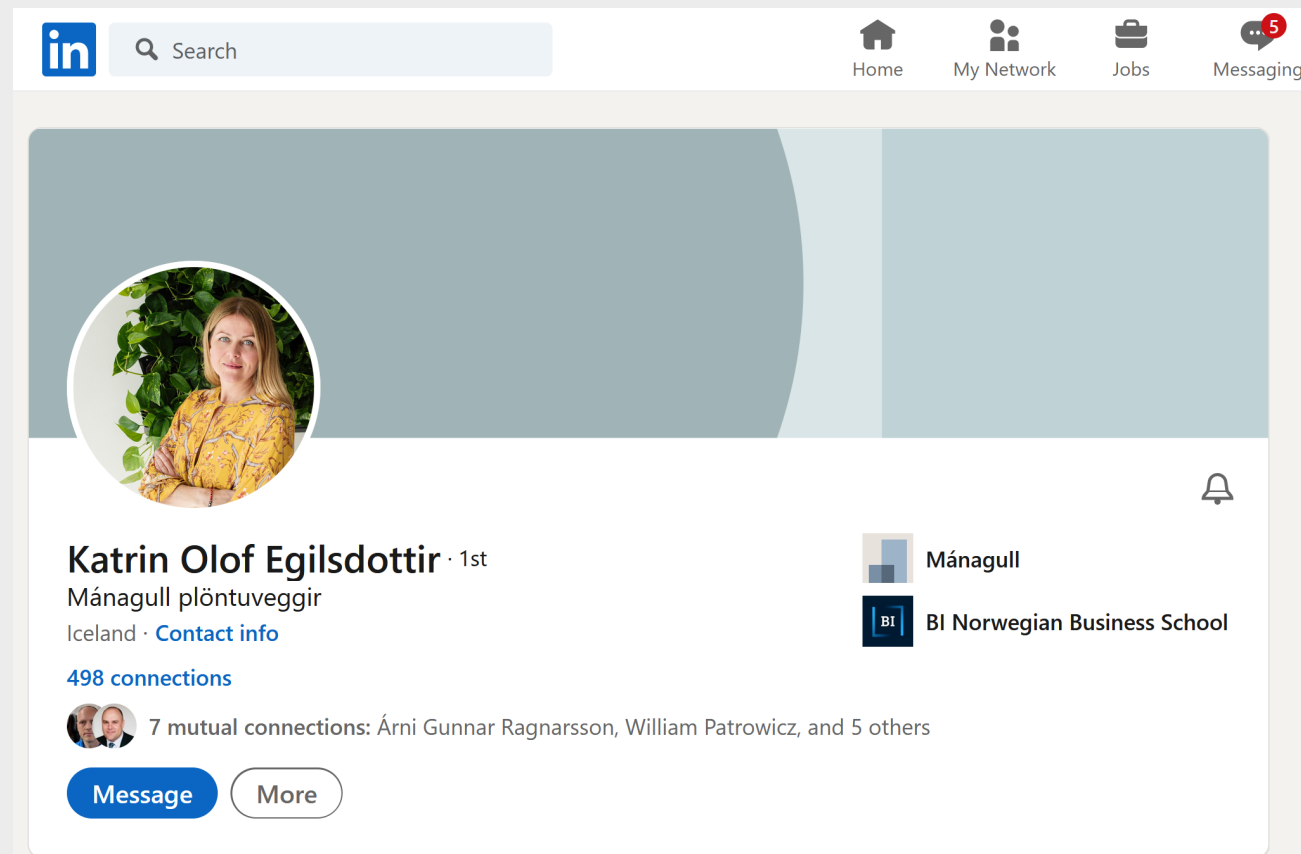
IR Mural Links

- IR3.1 Turbulent Flow: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377866397/8613c384d54f66fb5e78599ff307a4ce8a9090c0?sender=u15c3008bb41d6628a5bb5701>
- IR3.2 Clean Energy: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377887905/cb44cca3eed3bb9964fbfa36af16b1bfcc085f?sender=u15c3008bb41d6628a5bb5701>
- IR3.3 Reactive Flows: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377959022/0c363886f24833eeb19b025d87324b57fd50e2db?sender=u15c3008bb41d6628a5bb5701>
- IR3.4 Engine Design: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377976343/8d7aba6be09af3b2fd305d2f709e53661ac889d?sender=u15c3008bb41d6628a5bb5701>
- IR3.5 Coating: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621377991014/7a5d7e1eaf230178342d1e1d4a84d656d9055d52?sender=u15c3008bb41d6628a5bb5701>
- IR4.1 Fundamental Physics: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378007335/6f0d3283feac3eaf513bd6676e84d8b4879d39?sender=u15c3008bb41d6628a5bb5701>
- IR4.2 Seismic Imaging: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378023838/a0b9503abb837ac3e28a4fb88d9adbec33874998?sender=u15c3008bb41d6628a5bb5701>
- IR4.3 Manufacturing: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378038069/93df6fa7a41093f4eaae7be9d72979dc2ba42b9d?sender=u15c3008bb41d6628a5bb5701>
- IR4.4 Sound Engineering: <https://app.mural.co/t/matthiasbook8855/m/matthiasbook8855/1621378050431/b5fa12219002404059f90a4bbb0101fa379a8503?sender=u15c3008bb41d6628a5bb5701>



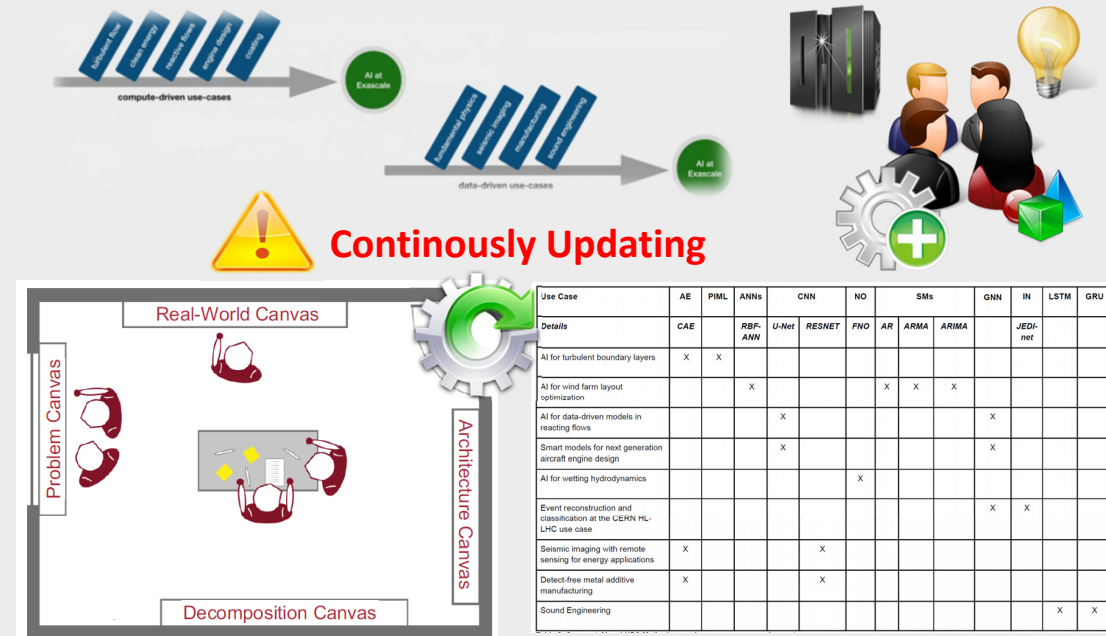
New WP2 Deputy Lead - Katrín Ólöf Egilsdóttir

- Research Assistant of Prof. Dr. – Ing. Morris Riedel
- WP2 Deputy Lead
- Should be involved in all RAISE relevant communications
- Email: katrine@hi.is
- **WELCOME!**



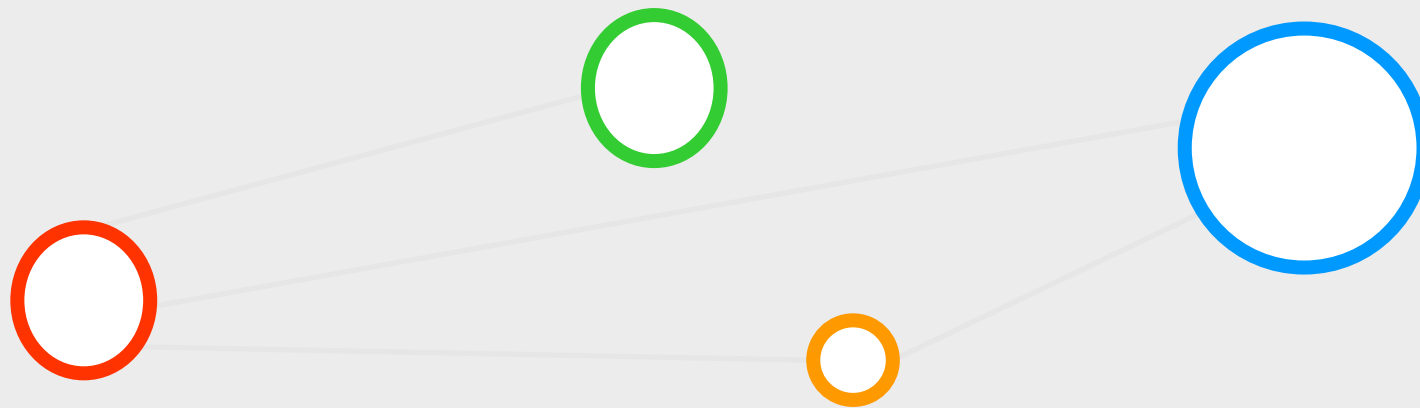
Interaction Room Status & Discussions – WP3/WP4 Overview

- WP3 (second round IRs)
 - T3.1: Turbulent Flow (not started)
 - T3.2: Clean Energy (not started)
 - T3.3: Reactive Flows (not started)
 - T3.4: Engine design (not started)
 - T3.5: Coating (not started)
- WP4 (second round IRs)
 - T4.1: Fundamental physics (not started)
 - T4.2: Seismic imaging (not started)
 - T4.3: Manufacturing (not started)
 - T4.4: Sound engineering (not started)
- TBD(Katrín): Schedule meetings with Interaction Room teams



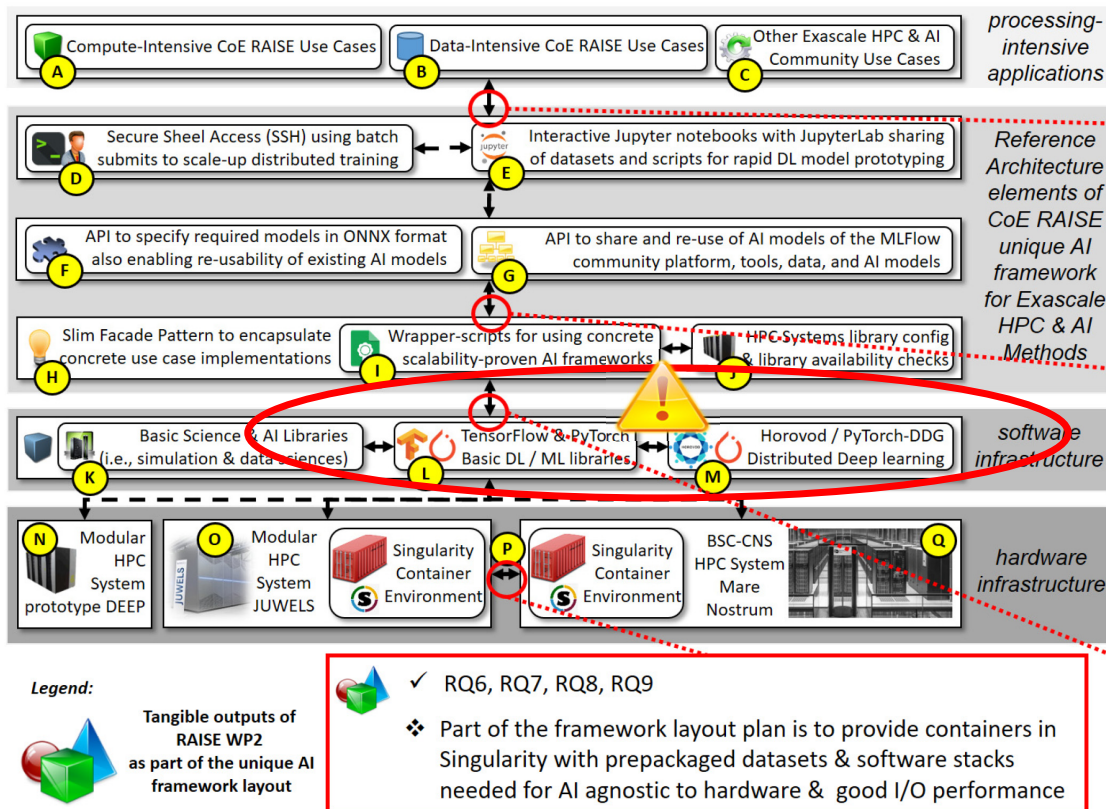
- Next round of Interaction Rooms with WP2
 - Carve out more details on AI/HPC methods
 - Contribute to the Unique AI Framework
 - Update our HPC/AI Methods Matrix

Agenda Item (3) – Realization of the SW Framework



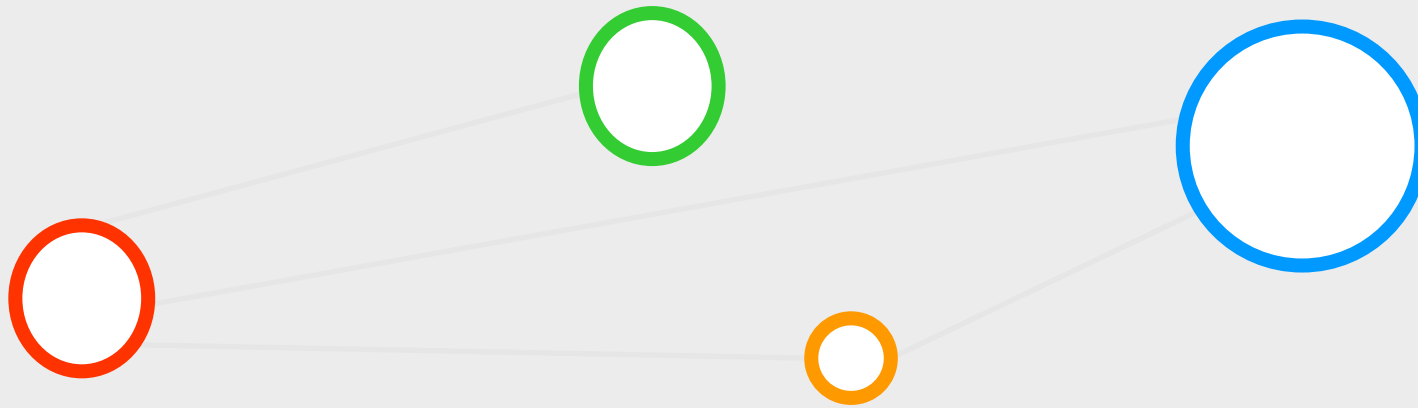
Realization of SW Framework – Ideas of Web Page & Git Links

➤ Available in BSCW: <https://bscw.zam.kfa-juelich.de/bscw/bscw.cgi/3694045>



**Continuously Updating:
e.g., add hyper-parameter optimization tools?!**

Agenda Item (4) – Status WP2 Seminar Plans



WP2 Monthly Seminars – Review & Plan



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WELCOME
RAISE CoE Seminar: HPC Systems
Engineering in the Interaction Room

Prof. Dr. – Ing. Morris Riedel, Prof. Matthias Book, Prof. Helmut Neukirchen
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-04-08, RAISE CoE Seminar HPC Systems Engineering in the Interaction Room, Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>

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WELCOME
RAISE CoE Seminar: Git-based Data
Management with the Open-Source DataLad Tool

Prof. Dr. – Ing. Morris Riedel, Prof. Michael Hanke, Dr. Kaustubh Patil
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-05-28, RAISE CoE Git-based Data Management with the Open-Source DataLad Tool, Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>

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WELCOME
RAISE CoE Seminar: High Performance Data
Analytics with the Helmholtz Analytics Toolkit (HeAT)

Prof. Dr. – Ing. Morris Riedel, Dr. Claudia Comito, Dr. Charlotte Debus
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-06-28, RAISE CoE Seminar High Performance Data Analytics with the Helmholtz Analytics Toolkit (HeAT), Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>

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WELCOME
RAISE CoE Seminar:
Distributed Deep Learning

Prof. Dr. – Ing. Morris Riedel et al.
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-07-29, RAISE CoE Seminar Distributed Deep Learning, Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>

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WELCOME
RAISE CoE Seminar:
Brief Introduction to Autoencoders

Prof. Dr. – Ing. Morris Riedel et al.
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-08-31, RAISE CoE Seminar Brief Introduction to Autoencoders, Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>

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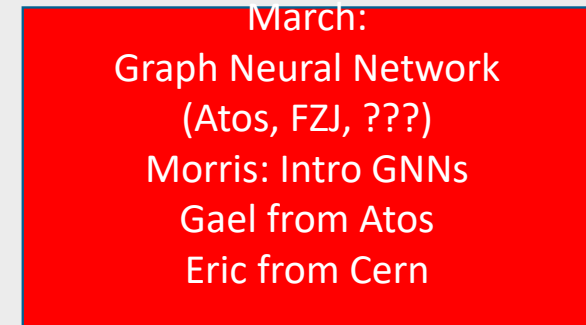
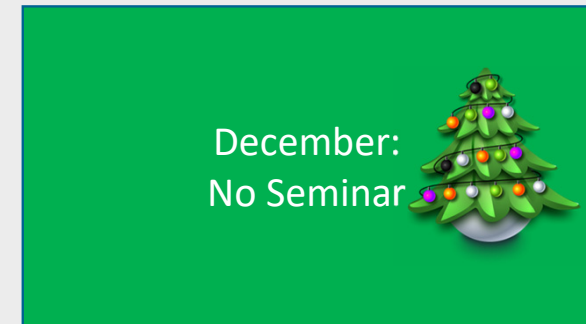
WELCOME
RAISE CoE Seminar:
MLOps with ClearML

Prof. Dr. – Ing. Morris Riedel et al.
School of Engineering & Natural Sciences, University of Iceland, Iceland
National Competence Center (NCC) for HPC & AI in Iceland – IHPC
2021-09-30, RAISE CoE Seminar MLOps with ClearML, Online

<https://www.youtube.com/watch?v=UVCWCVWvL4Zg>



WP2 Monthly Seminars – Review & Plan



TBD (all): Please suggest further training & teaching seminars for YouTube channel on our WP2 mailing list to plan better ahead



WP2 Monthly Seminars – Review & Plan



April:
Quantum Annealing
Maybe Gabriele Examples from
SVMs, Amer SVR

May:
Request Project Partners?
ONNX / OpenML
Interoperable formats

June:
Morris: GPUs in general
Arnis & Cuda @ RTU

July:
Request Project Partners?

August:
Request Project Partners?

September:
Request Project Partners?

TBD (all): Please suggest further training & teaching seminars for YouTube channel on our WP2 mailing list to plan better ahead



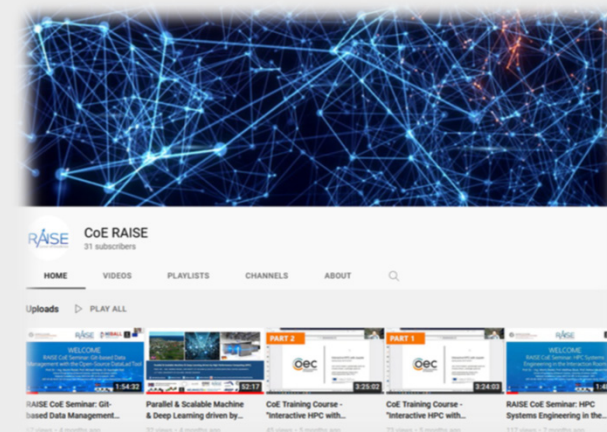
WP2 Monthly Seminars – Review & Plan



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➤ Monthly WP2 Seminars

- Co-organized with Icelandic National Competence Center (NCC) funded by the EuroCC project: <http://ihpc.is>
- Performed since Quarter 2 of the project (April 2021)
- Selected dates via agreement of availability of speakers
- Used as major AI/HPC methods information/training for WP3/WP4
- Contributed to outreach via YouTube Channel recordings: <https://www.youtube.com/channel/UCAdlZ-v6cWwGdapwYxdN7dg>
- TBD(Katrín): Schedule the YouTube Seminar series with speakers

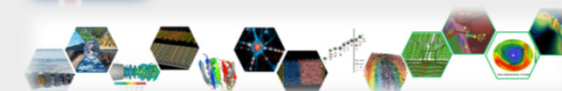


Plan for next 12 Month

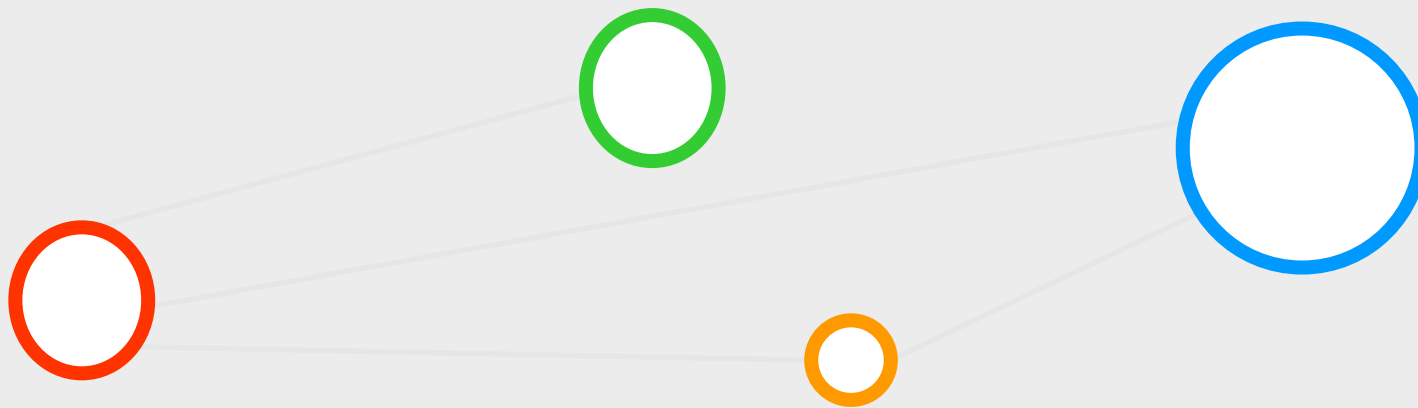
- Carry on with monthly WP2 seminars in the same style, but schedule on 3-4 month horizons
- Repeat certain seminars with advanced content and updates of activities (e.g., GraphCore & ATOS)
- Work better together with WP6 on releasing seminars on YouTube channel more regularly
- Collect slides of speakers and make them available on BSCW and/or on the RAISE Web Page



IHPC National Competence Center
(NCC) for HPC & AI in Iceland



Agenda Item (5) – Compelling Scoreboard Review & Next Steps



Compelling Scoreboard Review – Use Case Progress



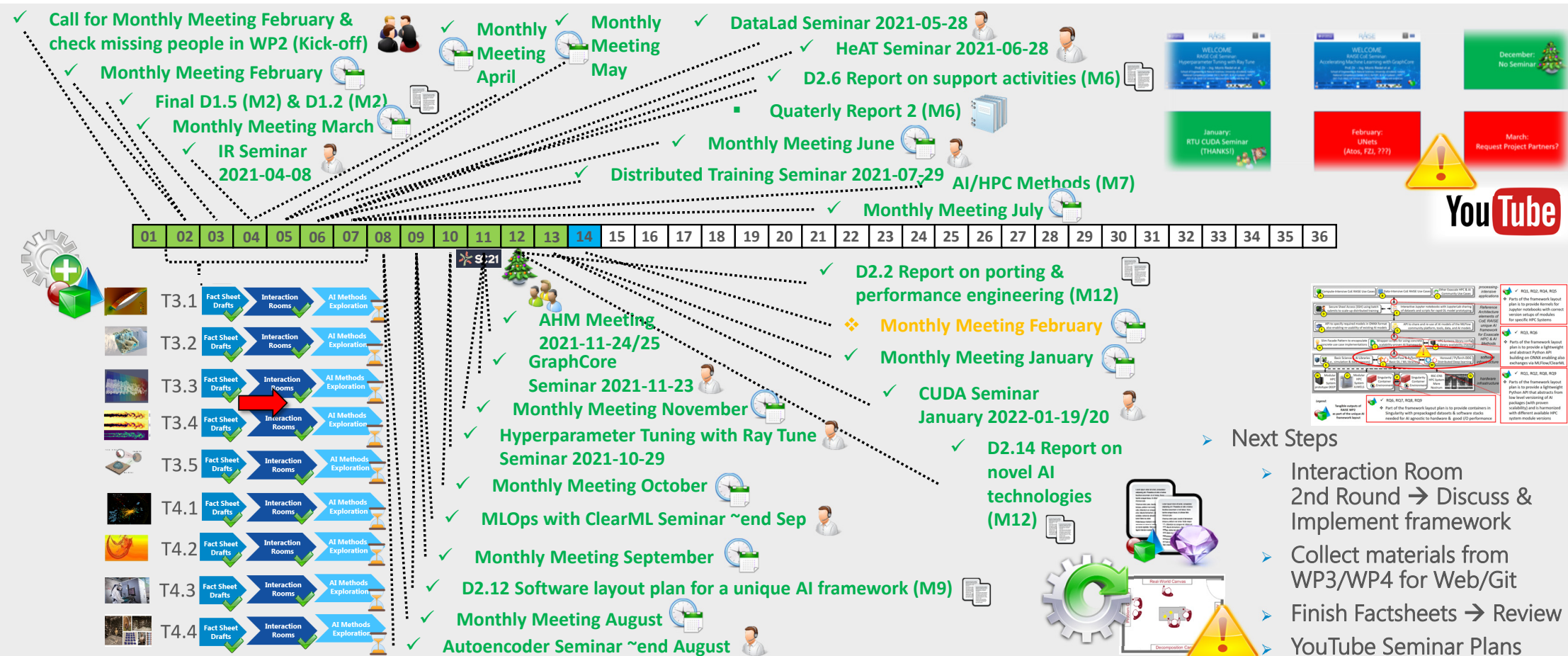
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Compelling Scoreboard Review & Next Steps



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2022-02-28 RAISE WP2 Monthly Meeting February 2022

Agenda Item (5) – Next Steps & Follow-Through

1. AOB: QR inputs from selected WP2 partners
 1. **TBD (Morris et al): PMT waits – urgent!**

2. AOB: News Article Last year
 1. **TBD(Morris): final integration of changes**



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The CoE RAISE project have received funding from the European Union's Horizon 2020 – Research and Innovation Framework Programme H2020-INFRAEDI-2019-1 under grant agreement no. 951733

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