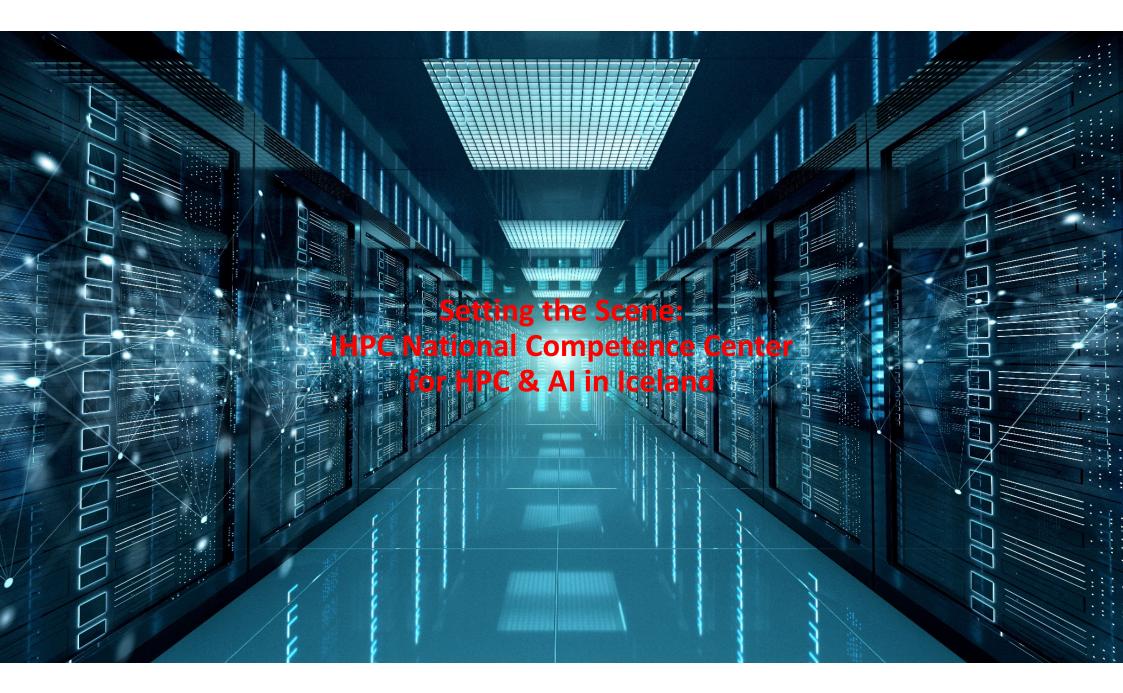


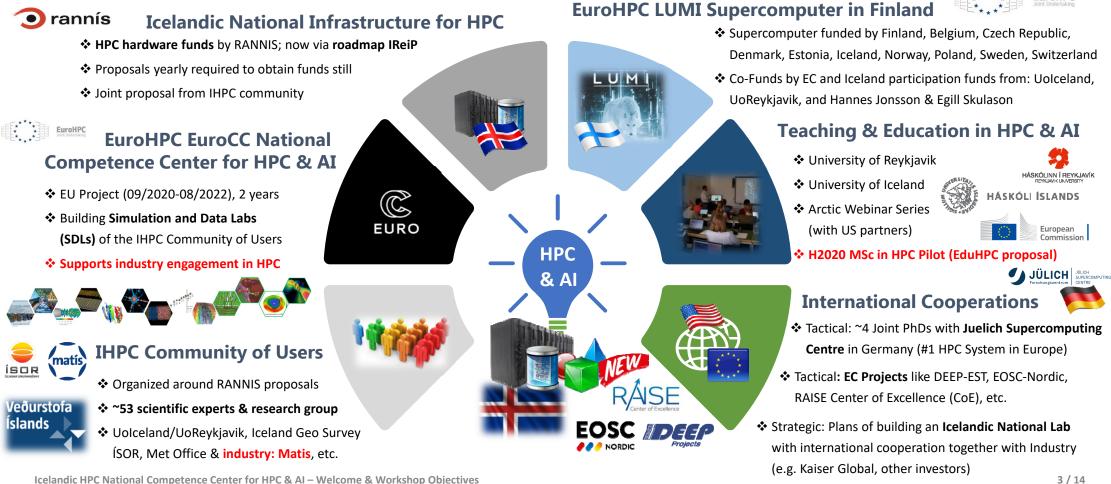
## Icelandic HPC National Competence Center for HPC & AI – Welcome & Workshop Objectives

PROF. DR. – ING. MORRIS RIEDEL, UNIVERSITY OF ICELAND & JUELICH SUPERCOMPUTING CENTRE (GERMANY), EVENT CHAIR 15<sup>TH</sup> DECEMBER, 3<sup>RD</sup> ICELANDIC HPC COMMUNITY WORKSHOP, UNIVERSITY OF ICELAND, GRÓSKA, ROOM ADA





## **Executive Summary – Major Icelandic HPC Activities**



**EuroHPC** 

# **EuroCC Activities – Selected Benefits towards Bottom-Up Community Building**

[3] IHPC SimDataLab Computational Chemistry Web Page



eory, adsorption spectroscopy, and magnetism, to name a fe

nulation of solvated molecules and the solid / liquid interface

Dr Flyar Örn Jónsson



[1] Icelandic HPC Community Web page

- Simulation & Data Lab Communities
  - Experts w.r.t. HPC in domain-specific topics
- Based on extensive community experience
  - Juelich Supercomputing Centre in Germany works with the model for ~16 years



HPC

Community

To get information regardin

get those information then

nailing list can send to it.

To get information to HPC a

IHPC mailing list

II Community Exper

Simulation and Data Lab Neurosci ulation and Data Lab Computational Ch

and Data Lab Re

and Data Lab Acoustic and Tactile Engi

nd Data Lab Software Engineering for e-Scien

ind Data Lab Health and Medici

Natural Language Processing La

Simulation and Data Lab Computational Fluid Dynamics

Icelandic HPC National Competence Center for HPC & AI – Welcome & Workshop Objectives

nt of explicit polarizable classical solvent models and methodology for hybrid simulations coupling cla

University of Iceland. The SimDataLab is Iceland's representative in the international projects in CFD and parallel computing. SimDataLab CFD aims to develop parallel code applications in CFD and support users who have already developed parallel application codes. SimDataLab CFD participates in the European project network in parallel computing and has an infrastructure and access to powerful parallel systems in-memory optimization, processing system architecture, high scalability, and have performance optimization computer nodes

nd Data Lab Electron, optical and transport properties of nanoscale systems – Computational Phys

[2] IHPC SimDataLab CFD Web Page

if you would like to

moderators of the

C

EURO

# Selected Results – 3rd Workshop – Reykjavik Institute Progress (AUDIO this time)



Icelandic HPC National Competence Center for HPC & AI – Welcome & Workshop Objectives

## Supercomputing 2021 Conference St. Louis – "Data Centers by Iceland"



	Morris Riedel (He/Him) Professor & Head of Researc 3w • 🔇	h Group High Produc	×	
at our Da US partn	at <b>#Supercomputing #So</b> ata Centers by <b>#Iceland #</b> ers <b>Center for Supercompu</b>	booth & meeting c		
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## **Workshop Objectives**

## **F2F WORKSHOP**

Bring together a diverse group of Icelandic and international stakeholders to discuss the role of HPC and related areas within Iceland without losing sight of its international links.

## PERFORM COMMUNITY BUILDING

**Perform community building** in developing new successful joint activities between academia and industry, potentially creating new joint Simulation and Data Labs or collaborations.



### Icelandic HPC National Competence Center for HPC & AI – Welcome & Workshop Objectives

### **DOCUMENT COMPETENCIES**

Document competencies, achievements, activities, and lessons learnt from participating stakeholders of Icelandic HPC efforts and associated international activities.

### RECOMMENDATIONS

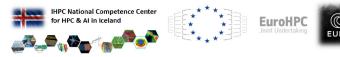
Identify best practices and core principles with a set of recommendations for developing the future Icelandic HPC ecosystem, including necessary skills, funding opportunities, applications, Centre of Excellences, community events, and sustainable infrastructure developments.

## Selected Results – 1st Workshop

## Facts

- Active on Social Media
- Visibility in EuroCC Project Review
- ~25 participants
- Report per Workshop
  - Will be available soon
  - Updates also on IHPC Web page

5:00 - 5:15	Informal Welcome – Participant Introduction & Discussions	All
	(Coffee/Tea/Refreshments, Snacks, and Sandwiches available)	
5:15 - 5:25	Opening remarks & Workshop objectives & Introduction	Prof. Dr. – Ing. Morris Riedel
	EuroCC IHPC National Competence Center for HPC & AI	(University of Iceland)
5:25 - 5:30	Q&A	All
5:30 - 5:40	Infrastructure, Services, and HPCFlow from atNorth	Rui Gomes
		(atNorth)
5:40 - 5:45	Q&A	All
5:45 - 5:55	Simulation and Data Lab Computational Fluid Dynamics	Seyedreza Hassanianmoaref
		(University of Iceland)
5:55 - 6:00	Q&A	All
6:00 - 6:10	An Overview of the Reykjavik Institute and its Strategic	Bill Patrowicz
	Planning for Icelandic Stakeholders	(Kaiser Global)
6:10-6:15	Q&A	All
6:15 - 6:25	From Management Games to the idea of "Dig In" and its future	Baldvin Albertsson &
		Björn H. Helgason (Vitargames)
6:25 - 6:30	Q&A	All
6:30 - 6:40	Accurate Virtual Acoustics Enabled by High-Performance	Finnur Pind
	Computing	(Treble)
6:40 - 6:45	Q&A	All
6:45 - 7:00	Workshop Closing – Concluding remarks with next steps	All
	(Coffee/Tea/Refreshments, Snacks, and Sandwiches available)	



### 1<sup>st</sup> Icelandic HPC Community Workshop Endurmenntun HI, Dunhaga 7, 107 Reykjavik – Room Náma 11<sup>th</sup> August 2021 – 5:00 – 7:00 p.m. GMT

### Background

The Icelandic High-Performance Computing (IHPC) activities are increasing in academia and industry that also includes related areas such as Artificial Intelligence (AI), Machine Learning (ML), Data Analytics, and Data Sciences. As a result, the IHPC community members created Icelandic Simulation and Data Labs (SDLs)<sup>1</sup>, including academic and industrial partners. They form together in a bottom-up fashion the IHPC National Competence Center for HPC & AI in Iceland partly funded by the EuroHPC Joint Undertaking EuroCC project. The IHPC community seeks more collaborations and new members.

### Objectives

This workshop aims to bring together a diverse group of Icelandic and international stakeholders to discuss the role of HPC and related areas within Iceland without losing sight of its international links. The specific objectives of the workshop are to:

- Document competencies, achievements, activities, and lessons learnt from participating stakeholders of Icelandic HPC efforts and associated international activities.
- **Perform community building** in developing new successful joint activities between academia and industry, potentially creating new joint Simulation and Data Labs or collaborations.
- Identify best practices and core principles with a set of recommendations for developing the future Icelandic HPC ecosystem, including necessary skills, funding opportunities, applications, Centre of Excellences, community events, and sustainable infrastructure developments.

### Participants

Approximately 20-25 participants from Iceland, Germany, and the USA. Participants will include:

- Selected Icelandic companies and SMEs from different sectors with interest in HPC & AI
- Academic representatives from the University of Iceland and Simulation and Data Labs
- The Icelandic Centre for Research (Rannís), Startup Iceland, and Icelandic Technology Clusters
- US company that forms government, industry, and academic cooperative research coalitions

### Output

The following outputs are expected:

- A short synthesis paper that documents Icelandic competencies, field experiences and achievements in using and/or offerings HPC & AI solutions and consideration of 'best practices'
- A short strategy paper responding to HPC & Al issues and challenges identified during the workshop, including potential options for jointly engaging in EuroHPC funding opportunities
- Strengthened informal networks and transfer of experiences and lessons learnt



Reza Hassanian • 1st earcher PHD Student at University of Iceland - Háskóli Íslands, Computati. mo · 🕥 1st HPC Community Workshop Simulation and Data Lab communities Simulation and Data Lab Computational Fluid Dynamics University of Iceland Morris Riedel Reza Hassanian Pedro Simões Costa Háskóli Íslands EuroCC CoE RAISE Kaiser Global atNorth Rannís - Icelandic Centre for Research

#ai #hpc #deeplearning #machinelearning #artificialintelligence #datascience



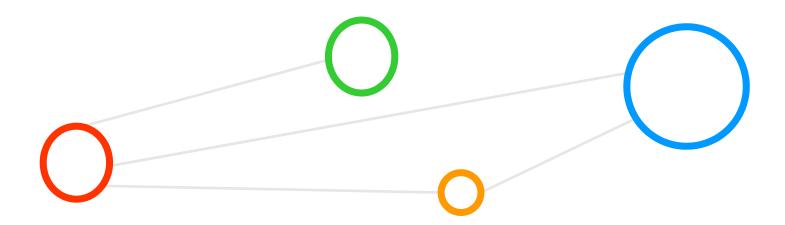
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Treble Technologies EuroHPC Joint Undertaking

#cfd #neuralnetworks

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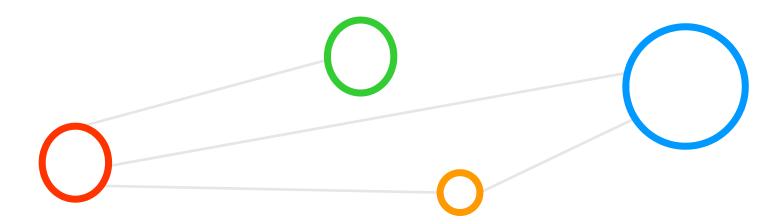
# **Selected References**



# **Selected References**

- [1] Icelandic HPC Community Web Page, Online: <u>ihpc.is/community</u>
- [2] Icelandic HPC Simulation and Data Lab Computational Fluid Dynamics (CFD), Online: <u>https://ihpc.is/simulation-and-data-lab-computational-fluid-dynamics/</u>
- [3] Icelandic HPC Simulation and Data Lab Computational Chemistry, Online: <u>https://ihpc.is/simulation-and-data-lab-computational-chemistry/</u>
- [4] Juelich Supercomputing Centre (JSC) Simulation and Data Labs, Online: https://www.fz-juelich.de/ias/jsc/EN/Expertise/SimLab/simlab\_node.html

# ACKNOWLEDGEMENTS



# Acknowledgements – High Productivity Data Processing Research Group



PD Dr. G. Cavallaro



Senior PhD Student M

A.S. Memon



PD Dr. M.S. Memon



PhD Student E. Erlingsson



PhD Student S. Bakarat



PhD Student R. Sedona



PhD Student P. H. Einarsson

Morris Riedel @MorrisRiedel - Feb 10 Filoying our yearly research group dinner Tceland Section' to celebrate our productive collaboration of @mil celand @uisens @Haskoli Jslands & @fr2jsc @fr2joelich & EEFingsson @enrie passed mid-term in modular supercomputing there is a constraint of the section of





Dr. M. Goetz (now KIT)



MSc M. MSc Richerzhagen P. Glock (now other division) (now INM-1)



MSc C. Bodenstein (now Soccerwatch.tv)



MSc G.S. Guðmundsson (Landsverkjun)



PhD Student Reza



This research group has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 763558 (DEEP-EST EU Project) and grant agreement No 951740 (EuroCC EU Project) & 951733 (RAISE EU Project)

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