NEST GPU Workshop 2024

Report of Contributions

Contribution ID: **1**

Type: **not specified**

Talk 1: network construction

Contribution ID: **2**   Type: **not specified**

Seminar

Thursday, 24 October 2024 14:30 (1h 30m)

Contribution ID: **3**   Type: **not specified**

Talk 2: simulation loop, optimization through profiling

Contribution ID: 4

Type: **not specified**

Talk 3: simulation loop, MPI optimization

Contribution ID: **5**   Type: **not specified**

Talk 4: validation and benchmarking

Contribution ID: **6**   Type: **not specified**

Talk 5: NEST ML on NEST GPU

Contribution ID: **7** Type: **not specified**

Talk 1

Contribution ID: **8** Type: **not specified**

Talk 2

Contribution ID: **9** Type: **not specified**

Talk 3

Contribution ID: **10** Type: **not specified**

Talk 4

Contribution ID: **11**

Type: **not specified**

Talk 5

Contribution ID: **12** Type: **not specified**

Talk 6

Contribution ID: **13** Type: **not specified**

Talk 7

Contribution ID: **24**   Type: **not specified**

The quest for validating and benchmarking NEST GPU

Wednesday, 23 October 2024 11:05 (15 minutes)

Presenter: Mr TIDDIA, Gianmarco (Istituto Nazionale di Fisica Nucleare, Sezione di Cagliari)

Session Classification: Validation and benchmarking

Contribution ID: **25**   Type: **not specified**

Towards spatially organized networks with NEST GPU

Presenter: VILLAMAR, Jose (Institute for Advanced Simulation (IAS-6), Jülich Research Centre, Jülich, Germany)

Session Classification: Validation and benchmarking

Contribution ID: **26**   Type: **not specified**

Studies for MPI communication optimizations

Presenters: Dr SIMULA, Francesco (ROMA1); PONTISSO, Luca (Istituto Nazionale di Fisica Nucleare)

Session Classification: Validation and benchmarking

Contribution ID: **27**
Type: **not specified**

Introduction to CINECA and ICSC HPC systems

Presenter: DI BARI, Daniele (CINECA)

Session Classification: Validation and benchmarking

Contribution ID: **28**   Type: **not specified**

NEST Simulator alignment and HPC centered benchmarking

Wednesday, 23 October 2024 11:20 (15 minutes)

Presenter: TERHORST, Dennis (Forschungszentrum Jülich GmbH)

Session Classification: Validation and benchmarking

Contribution ID: **29**   Type: **not specified**

Exabrainprep: Bridging simulations with a common connection pooling implementation

Wednesday, 23 October 2024 11:35 (15 minutes)

Presenter: SCHOEFMANN, Catherine Mia (Jülich Research Center)

Session Classification: Validation and benchmarking

Contribution ID: **30**   Type: **not specified**

Exploiting network topology in brain-scale multi-area model simulations

Wednesday, 23 October 2024 14:00 (15 minutes)

Presenter: KUNKEL, Susanne (PGI-15, Juelich Research Centre)

Session Classification: MPI and simulation loop optimization

Contribution ID: **31**   Type: **not specified**

Towards spatially organized networks with NEST GPU

Wednesday, 23 October 2024 14:15 (15 minutes)

Presenter: VILLAMAR, Jose (Institute for Advanced Simulation (IAS-6), Jülich Research Centre, Jülich, Germany)

Session Classification: MPI and simulation loop optimization

Contribution ID: **32**   Type: **not specified**

Studies for MPI communication optimizations

Wednesday, 23 October 2024 14:30 (15 minutes)

Presenters: Dr SIMULA, Francesco (ROMA1); PONTISSO, Luca (Istituto Nazionale di Fisica Nucleare)

Session Classification: MPI and simulation loop optimization

Contribution ID: **33**   Type: **not specified**

Introduction to CINECA and ICSC HPC systems

Wednesday, 23 October 2024 14:45 (15 minutes)

Presenter: DI BARI, Daniele (CINECA)

Session Classification: MPI and simulation loop optimization

Contribution ID: **34**   Type: **not specified**

Modeling and simulating spiking neurons with NESTML on NEST GPU

Thursday, 24 October 2024 10:00 (15 minutes)

Presenter: BABU, Pooja (Forschungszentrum Jülich)

Session Classification: NESTML and compartment models

Contribution ID: **35**   Type: **not specified**

Learning / sleep with apical mechanisms

Thursday, 24 October 2024 10:15 (15 minutes)

Presenter: PAOLUCCI, Pier Stanislao (Istituto Nazionale di Fisica Nucleare)

Session Classification: NESTML and compartment models

Contribution ID: **36**   Type: **not specified**

Compartmental models in NEST-GPU

Thursday, 24 October 2024 10:30 (15 minutes)

Presenter: WYBO, Willem (Forschungszentrum Jülich)

Session Classification: NESTML and compartment models

Contribution ID: **37**   Type: **not specified**

Simplified neuronal model capturing brain-state specific apical -amplification, -isolation and -drive induced by calcium dynamics

Thursday, 24 October 2024 10:45 (15 minutes)

Presenter: PASTORELLI, Elena (Istituto Nazionale di Fisica Nucleare)

Session Classification: NESTML and compartment models

Contribution ID: **38**   Type: **not specified**

New biophysical mechanisms in NEST

Friday, 25 October 2024 09:30 (15 minutes)

Presenter: DIESMANN, Markus

Session Classification: Development of new models

Contribution ID: **39**   Type: **not specified**

Computational neuroscience: studying structural plasticity mechanisms through firing-rate and spiking models

Friday, 25 October 2024 09:45 (15 minutes)

Presenter: SERGI, Luca (Istituto Nazionale di Fisica Nucleare)

Session Classification: Development of new models

Contribution ID: **40**   Type: **not specified**

Let's refine the NEST GPU Roadmap

Friday, 25 October 2024 11:35 (15 minutes)

Presenter: SENK, Johanna

Session Classification: Roadmap refinement and hackathon organization

Contribution ID: **41**   Type: **not specified**

Full model of the CA1 Human Hippocampus

Friday, 25 October 2024 10:00 (15 minutes)

Presenter: SOLINAS, Sergio (University of Sassari)

Session Classification: Development of new models

Contribution ID: **43**   Type: **not specified**

Bridging Local and Remote Connectivity: Optimizing MPI-GPU Simulations of Spiking Neural Networks models

Wednesday, 23 October 2024 10:15 (30 minutes)

Presenter: GOLOSIO, Bruno (Istituto Nazionale di Fisica Nucleare)

Session Classification: Network construction