

Joint Usage/Research Center for Interdisciplinary Large-Scale Information Infrastructures

2022 Joint Research Projects

2022 Joint Research Projects: 63 Projects (106 joint research centers)
 【 International 4, General 59 】

CS: Large-scale computational science area DS: Data science/data usage area
 NA: Very large-scale numerical computation DA: Very large-scale data processing
 NW: Very large capacity network technology IS: Very large-scale information system

International Joint Research Projects

Project Title	Leader (Affiliation)	Area	Category	Joint Research Center
Hierarchical low-rank approximation methods on distributed memory and GPUs	Rio Yokota (Tokyo Institute of Technology)	CS	NA	Hokkaido, UTokyo, Nagoya, Kyoto, Osaka, Tokyo Tech
High resolution simulation of cardiac electrophysiology on realistic whole-heart geometries	Kengo Nakajima (The University of Tokyo)	CS	NA, DA, IS	UTokyo
Innovative Multigrid Methods II	Akihiro Fujii (Kogakuin University)	CS	NA	Hokkaido, UTokyo, Nagoya, Kyushu
Implementation and Application of High-Performance Empirical Dynamic Modeling	Keichi Takahashi (Tohoku University)	DS	NA, DA	Tohoku

General Joint Research Projects (1/2)

Project Title	Leader (Affiliation)	Area	Category	Joint Research Center
Large-scale aeroacoustic simulation on wind instruments and acoustic equipments	Kinya Takahashi (Kyushu Institute of Technology)	CS	NA	Nagoya, Kyushu
Monte-Carlo study of color-confinement mechanism of QCD due to Dirac-type monopoles	Tsuneo Suzuki (Osaka University)	CS	NA	Osaka
Large scale simulation for turbulent transport of many dispersed particles	Takeshi Watanabe (Nagoya Institute of Technology)	CS	NA	Nagoya
Development of massively parallelized particle simulation code for fusion plasma research and visualization of the simulation results	Hiroaki Ohtani (National Institute for Fusion Science)	CS	NA	Nagoya, Kyoto
Development of high-performance parallel code for LES of MHD turbulence	Hideaki Miura (National Institute for Fusion Science)	CS	NA	UTokyo
First-principles simulation on deuterated hydrogen bonding network in protein	Masanori Tachikawa (Yokohama City University)	CS	NA	Kyushu
Machine Learning Modeling of Dynamical Systems by using Biased Training Data	Yoshitaka Saiki (Hitotsubashi University)	CS	NA	UTokyo, Nagoya
Improvements of FMO program ABINIT-MP for huge scale systems	Yuji Mochizuki (Rikkyo University)	CS	NA	Nagoya
Toward practical applications of large scale distributed medical image processing	Satoshi Ohshima (Nagoya University)	CS	DA	UTokyo, Nagoya
Acceleration of multi-physics particle simulator in multi-GPU environments across computer nodes	Mitsuteru Asai (Kyushu University)	CS	NA	UTokyo, Kyushu
Development of efficient boundary integral equation method and application to gigantic earthquake simulations	Ryosuke Ando (The University of Tokyo)	CS	NA	Hokkaido, UTokyo
Construction of Structural Variation Panel and Annotation using Hybrid Cloud System	Masao Nagasaki (Kyoto University)	DS	NW	UTokyo, Kyoto, Kyushu
Large-scale Simulation of Offshore Wind Farm using Lattice Boltzmann Method	Seiya Watanabe (Kyushu University)	CS	NA	Tokyo Tech
Study on Multi-scale Space Plasma Simulations with Cross-Reference Framework	Yohei Miyake (Kobe University)	CS	NA	Hokkaido, Kyoto, Kyushu
Projection of flood damage and its adaptation measures in Japan	Yoshiya Touge (Tohoku University)	CS	NA	Tohoku
High performance computing for large-scale unclarified slope disasters by using MPM and FEM	Kenjiro Terada (Tohoku University)	CS	NA	Tohoku, UTokyo
Uncertainty Quantification of extreme weather prediction	Yohei Sawada (The University of Tokyo)	CS	NA	UTokyo
Developing Monte Carlo codes available for high-density 2-color QCD as a way to determine the phase diagram	Kei Iida (Kochi University)	CS	NA	Kyoto, Osaka
High-performance and Highly-reliable Numerical Methods and Applications	Takeshi Ogita (Tokyo Women's Christian University)	CS	NA	Hokkaido, UTokyo, Nagoya, Tokyo Tech
Development of power model and large-scale phase-field lattice Boltzmann simulations for additive manufacturing	Tomohiro Takaki (Kyoto Institute of Technology)	CS	NA	Tokyo Tech
Chiral symmetry and mechanism for scalar meson mass generation in lattice QCD	Motoko Sekiguchi (Kokushikan University)	CS	NA	Osaka
Flexible computing resource offering policy by collaboration of computing centers	Hiroyuki Takizawa (Tohoku University)	CS	NA, IS	Tohoku, Osaka
Evaluation of aortic dissections and treatment methods using numerical simulation	Ryo Takeda (Hokkaido University)	CS	NA	Hokkaido
Development of large-scale direct numerical simulation codes for turbulence using asynchronous I/O capability	Mitsuo Yokokawa (Kobe University)	CS	NA, IS	Tohoku

General Joint Research Projects (2/2)

Project Title	Leader (Affiliation)	Area	Category	Joint Research Center
Integration of 3D Simulation for Seismic Wave Propagation & Real-Time Data Assimilation	Kengo Nakajima (The University of Tokyo)	CS	NA,DA, NW,IS	UTokyo,Nagoya
Urban wind database for immediate high-resolution prediction	Naoyuki Onodera (Japan Atomic Energy Agency)	DS	NA,DA	UTokyo
Targeting exa-scale systems: performance portability and scalable data analyses	Yuuichi Asahi (Japan Atomic Energy Agency)	CS	NA,DA	UTokyo,Tokyo Tech
Improvement of interface capturing method for gas-liquid two-phase flow analysis in nuclear energy field	Kenta Sugihara (Japan Atomic Energy Agency)	CS	NA	Tokyo Tech
Fusion of high-performance wave analysis techniques and data science toward the realization of NDE4.0	Takahiro Saitoh (Gunma University)	CS	NA	Hokkaido,Kyoto
Application of Machine Learning to the Elementary Physics Experiments	Masako Iwasaki (Osaka Metropolitan University)	DS	NA,DA	Osaka
Extending Distcloud, improving continuity, and researching its applications	Hiroaki Kashiwazaki (National Institute of Informatics)	CS	IS	Hokkaido
Practical acceleration methods to achieve high performance for large-scale applications	Takashi Shimokawabe (The University of Tokyo)	CS	NA	UTokyo,Osaka
Networked Materials Informatics based on Absolute Energy Estimation by TOMBO	Yoshiyuki Kawazoe (Tohoku University)	CS	NA,NW	Kyushu
Acceleration of Polymer Materials Simulations through GPU Parallel Computing	Katsumi Hagita (National Defense Academy)	CS	NA	UTokyo,Nagoya,Osaka
Mechanism of heat exchange of complicated structures by two-phase heat and fluid flow simulation	Masayuki Kaneda (National Institute of Informatics)	CS	NA	Tokyo Tech
Development of a framework for human-cloth-airflow interaction simulation	Takayuki Aoki (Tokyo Institute of Technology)	CS	NA	UTokyo
Development and Application of Risk Assessment Simulator for Heat-Related Illness	Akimasa Hirata (Nagoya Institute of Technology)	CS	NA	Tohoku
Application of Software Auto-Tuning Technology to Machine Learning Software	Teruo Tanaka (Kogakuin University)	CS	NA	Nagoya
Study on Next Generation Accelerator and Its file IO	Toshihiro Hanawa (The University of Tokyo)	CS	IS	Utokyo,Nagoya
Static Load Balancing Framework Generalized by Graph Structures and its Application to Mesh-free Methods	Naoki Morita (University of Tsukuba)	CS	NA	UTokyo
Combination of HPC and high-speed data transfer technologies for big-data processing systems	Takeshi Murata (National Institute of Information and Communications Technology)	DS	DA,NW,IS	Hokkaido,Tohoku, UTokyo,Nagoya,Kyoto, Osaka,Kyushu
Synthetic Population Project: Construction of Synthetic Population Database on mdx	Tadahiko Murata (Kansai University)	DS	NA,DA	Hokkaido,UTokyo, Osaka
Development of surrogate models predicting spatiotemporal dynamics	Takashi Shimokawabe (The University of Tokyo)	CS	NA,DA	UTokyo
Integrated Simulation of Aerodynamics, Propulsion, and Structure to Establish Design Study Techniques for Propeller-Driven Small Aircraft	Masahiro Kanazaki (Tokyo Metropolitan University)	CS	NA	Hokkaido,Tohoku
Machine Learning for Soft Matter Flows	John Molina (Kyoto University)	CS	NA,DA	UTokyo
Prediction of Marine Ecosystem by Integrating Numerical Simulation and Machine Learning	Jun Kikuchi (RIKEN)	CS	NA,DA	UTokyo
Visualizing and discovering morphological mutations on skeletal specimens using CT imaging and deep learning	Takashi Morita (Osaka University)	DS	NA,DA	Osaka
Construction of integrated machine learning molecular dynamics system	Masahiko Okumura (Japan Atomic Energy Agency)	DS	NA	UTokyo
Research, development, and evaluation of system software for next-generation academic IT infrastructure	Akiyoshi Sugiki (Hokkaido University)	DS	IS	Hokkaido,Utokyo, Osaka
Waveform tomography for the structure model of the subduction zones by using large-scale seismic-wave simulations: the source region of the 2011 Tohoku-Oki earthquake and the Ryukyu (Nansei-Shoto) island arc area	Taro Okamoto (Tokyo Institute of Technology)	CS	NA	Tokyo Tech ,Nagoya
Efficient Method for Integrated Optimization of Flow Control Devices and Body Geometries	Takashi Matsuno (Tottori University)	CS	NA	Hokkaido
Visualization and Statistical Modeling of Financial Big Data	Masayuki Jimichi (Kwansei Gakuin University)	DS	-	UTokyo
A large-scale graph neural network for job matching in the medical and nursing areas	Toyotaro Suzumura (The University of Tokyo)	DS	-	UTokyo
Development of nationwide synthetic people flow data based on agent model and statistical data	Yoshihide Sekimoto (The University of Tokyo)	DS	-	UTokyo
Developing a Platform for Constructing and Sharing of Large-Scale Japanese Language Models	Akiko Aizawa (National Institute of Informatics)	DS	-	UTokyo
Material Property Prediction based on Graph Neural Networks and Multi-task Learning	Masatoshi Hanai (The University of Tokyo)	DS	-	UTokyo
IT system to connect region and society toward beyond "zero carbon"	Yuichiro Kanematsu (The University of Tokyo)	DS	-	UTokyo
Development of dependency-parsers for "untokenized" natural languages	Koichi Yasuoka (Kyoto University)	DS	-	-
Advanced utilization of multi-dimensional high definition earth surface data (MHESD) in earth sciences, history and archaeology	Yuichi S. Hayakawa (Hokkaido University)	DS	-	Hokkaido,UTokyo