MSML2022 Conference Schedule

Note:

Authors with '*' will present on the conference.

Aug 15th, 2022, Monday (GMT+8)

8:35am- 9:35am **Plenary Lecture**

- **Learning operators using deep neural networks for multiphysics, multiscale, & multifidelity problems**
  Lu Lu (University of Pennsylvania)

9:35am- 10:15am

- **Learning Green's Functions of Linear Reaction-Diffusion Equations with Application to Fast Numerical Solver**
  Yuankai Teng (University of South Carolina)*; Xiaoping Zhang (Wuhan University); Zhu Wang (University of South Carolina); Lili Ju (University of South Carolina)

10:15am- 10:55am

- **A Quantum-Inspired Hamiltonian Monte Carlo Method for Missing Data Imputation**
  Didem Kochan (Lehigh University)*; Zheng Zhang (UC Santa Barbara); Xiu Yang (Lehigh University)

10:55am- 11:35am

- **SpecNet2: Orthogonalization-free Spectral Embedding by Neural Networks**
  Ziyu Chen (Duke University)*; Yingzhou Li (Fudan University); Xiuyuan Cheng (Duke University)

11:35am- 12:15pm

- **Monte Carlo Tree Search based Hybrid Optimization of Variational Quantum Circuits**
  Jiahao Yao (University of California, Berkeley)*; Haoya Li (Stanford University); Marin Bukov (University of California, Berkeley); Lin Lin (University of California, Berkeley); Lexing Ying (Stanford University)

1:30pm- 2:10pm

- **Structure-preserving Sparse Identification of Nonlinear Dynamics for Data-driven Modeling**
  Kookjin Lee (Arizona State University)*; Nathaniel A Trask (Sandia

National Laboratories)*; Panos Stinis (Pacific Northwest National Laboratory)

2:10pm- 2:50pm

- **MURANA: A Generic Framework for Stochastic Variance-Reduced Optimization**
  Laurent CONDAT (KAUST)*; Peter Richtarik (KAUST)

2:50pm- 3:30pm

- **Optimal denoising of rotationally invariant rectangular matrices**
  Emanuele Troiani (EPFL); Vittorio Erba (EPFL)*; FLORENT KRZAKALA (EPFL); Antoine Maillard (ETH Zurich); Lenka Zdeborova (EPFL)

3:30pm- 4:10pm

- **On the Nash equilibrium of moment-matching GANs for stationary Gaussian processes**
  Sixin Zhang (IRIT)*

Aug 16th, 2022, Tuesday (GMT+8)

8:30am- 9:10am

- **Natural Compression for Distributed Deep Learning**
  Samuel Horváth (MBZUAI)*; Chen-Yu Ho (KAUST); Ludovit Horvath (Comenius University); Atal N Sahu (KAUST); Marco Canini (KAUST); Peter Richtarik (KAUST)

9:10am- 9:50am

- **Error-in-variables modelling for operator learning**
  Ravi Patel (Sandia National Laboratories)*; Indu Manickam (Sandia National Laboratories); Myoungkyu Lee (University of Alabama); Mamikon Gulian (Sandia National Laboratories)

9:50am- 10:30am

- **Data adaptive RKHS Tikhonov regularization for learning kernels in operators**
  Fei Lu (Johns Hopkins University)*; Quanjun Lang (Johns Hopkins University); Qingci An (Johns Hopkins University)

10:30am- 11:10am

- **Stochastic and Private Nonconvex Outlier-Robust PCA**
  Tyler Maunu (Brandeis University)*; Chenyu Yu (Princeton University); Gilad Lerman (University of Minnesota)

11:10am- 11:50am

- **Momentum Transformer: Closing the Performance Gap Between Self-attention and Its Linearization**
  Tan Minh Nguyen (University of California, Los Angeles) *; Richard Baraniuk (Rice University); Robert Kirby (University of Utah); Stanley Osher (UCLA); Bao Wang (University of Utah)

1:30pm- 2:30pm **Plenary Lecture**

- **Deep Approximation via Deep Learning**
  Zuowei Shen (National University of Singapore)

2:30pm- 3:10pm

- **An Upper Limit of Decaying Rate with Respect to Frequency in Linear Frequency Principle Model**
  Tao Luo (Shanghai Jiaotong University); Zheng Ma (Shanghai Jiao Tong University); Zhiwei Wang (Shanghai Jiaotong University)*; Zhiqin John Xu (Shanghai Jiao Tong University); Yaoyu Zhang (Shanghai Jiao Tong University)

3:10pm- 3:50pm

- **Error Estimates for the Deep Ritz Method with Boundary Penalty**
  Marius Zeinhofer (Simula Research Laboratory)*; Johannes Müller (Max Planck Institute for Mathematics in the Sciences)

3:30pm- 4:10pm

- **Notes on Exact Boundary Values in Residual Minimisation**
  Marius Zeinhofer (Simula Research Laboratory); Johannes Müller (Max Planck Institute for Mathematics in the Sciences)*

Aug 17th, 2022, Wednesday (GMT+8)

8:30am- 9:10am

- **Online Weak-form Sparse Identification of Partial Differential Equations**
  Daniel A Messenger (University of Colorado Boulder)*; Emiliano Dall'Anese (Department of Electrical, Computer, and Energy Engineering, University of Colorado Boulder); David Bortz (University of Colorado Boulder)

9:10am- 9:50am

- **Freeze and Chaos: NTK views on DNN Normalization, Checkerboard and Boundary Artifacts**

Arthur Jacot (EPFL)*; Franck Gabriel (EPFL); François Ged (EPFL); Clement Hongler (EPFL)

9:50am- 10:30am

- **Hierarchical partition of unity networks: fast multilevel training**
  Nathaniel A Trask (Sandia National Laboratories)*; Amelia Henriksen (Sandia National Laboratories); Carianne Martinez (Sandia National Laboratories); Eric Cyr (Sandia National Laboratories)

10:30am- 11:10am

- **Concentration of Random Feature Matrices in High-Dimensions**
  Zhijun Chen (Carnegie Mellon University) *; Hayden Schaeffer (Carnegie Mellon University); Rachel Ward (University of Texas)

11:10am- 11:50am

- **SHRIMP: Sparser Random Feature Models via Iterative Magnitude Pruning**
  Yuege Xie (University of Texas at Austin)*; Robert Shi (University of Texas at Austin); Hayden Schaeffer (Carnegie Mellon University); Rachel Ward (University of Texas)

1:30pm- 2:30pm **Plenary Lecture**

- **Rational Materials Design**
  Konstantin Novoselov (National University of Singapore)

2:30pm- 3:10pm

- **A Machine Learning Enhanced Algorithm for the Optimal Landing Problem**
  Yaohua Zang (Zhejiang Uinversity)*; Jihao Long (Princeton University); Xuanxi Zhang (Peking University); Wei Hu (Princeton University); Weinan E (Princeton University); Jiequn Han (Flatiron Institute)

3:10pm- 3:50pm

- **Adaptive sampling methods for learning dynamical systems**
  Zichen Zhao (National University of Singapore)*; Qianxiao Li (National University of Singapore)