



3rd ERCOFTAC Workshop on
Machine Learning for Fluid
Dynamics



ERCOTAC

European Research Community On
Flow, Turbulence And Combustion

3rd ERCOFTAC Workshop on Machine Learning for Fluid Dynamics

Conference Programme

(Last updated: 17/02/2026)



Conference Chairs:

- **Prof. Benjamin Sanderse** – *Centrum Wiskunde & Informatica, Eindhoven University of Technology*, chair
- **Dr. Richard P. Dwight** – *Delft University of Technology*, co-chair

Scientific Committee:

- **Prof. Ricardo Vinuesa** – *University of Michigan*
- **Prof. Nils Thuerey** – *Technical University of Munich*
- **Prof. Heng Xiao** – *University of Stuttgart*
- **Prof. Andrea Beck** – *University of Stuttgart*
- **Prof. Luca Biferale** – *University of Rome Tor Vergata*
- **Prof. Taraneh Sayadi** – *Conservatoire National Arts et Métiers*
- **Prof. Paola Cinnella** – *Sorbonne University*
- **Prof. Maria Vittoria Salvetti** – *University of Pisa*
- **Prof. Gianluca Iaccarino** – *Stanford University*
- **Dr. Romit Maulik** - *Pennsylvania State University*
- **Prof. Chris Pain** – *Imperial College London*
- **Dr. Jane Bae** – *California Institute of Technology*
- **Prof. Gianluigi Rozza** – *International School for Advanced Studies*
- **Prof. Elias Cueto** – *University of Zaragoza*
- **Prof. Angelo Iollo** – *University of Bordeaux*
- **Dr. Neil Ashton** – *NVIDIA*
- **Dr. Adrian Lozano Duran** – *California Institute of Technology*
- **Prof. Nathan Kutz** – *University of Washington*
- **Prof. Luca Magri** – *Imperial College London*
- **Dr. Daan Crommelin** – *Centrum Wiskunde & Informatica*
- **Prof. Gabriel Weymouth** – *Delft University of Technology*

Local Organizing Committee:

- **Dr. Nguyen Anh Khoa Doan** – *Imperial College London, Delft University of Technology*
- **Dr. Bernat Font** – *Delft University of Technology*
- **Dr. Wouter Edeling** – *Centrum Wiskunde & Informatica*
- **Tyler Buchanan** – *Delft University of Technology*
- **Nada Mitrovic** – *Centrum Wiskunde & Informatica*
- **Magdalena Yates** – *ERCOFTAC*



Program at a glance

| Scientific Program | Wednesday 04 March |
|--------------------|--|
| 08:30 – 09:45 | Arrival and registration |
| 09:45 – 10:00 | Opening – Prof. Benjamin Sanderse (Turing and streamed in Euler) |
| 10:00 – 10:50 | Keynote 1 - Causality is 4-D for Scientific Discovery in Fluids, Dr. Adrian Lozano Duran (CalTech) (Turing and streamed in Euler) |
| 10:50 – 11:30 | Coffee break (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 11:30 – 12:30 | DR1 (Turing), EXP (Euler), O&D1 (L016-Hypathia), PIML 1 (L017-Ada) |
| 12:30 – 13:40 | Group picture + Lunch (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 13:40 – 15:20 | DR2 (Turing), TM-LES1 (Euler), O&D2 (L016-Hypathia), PIML 2 (L017-Ada) |
| 15:20 – 16:00 | Coffee break (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 16:00 – 17:40 | DR3 (Turing), TM-LES2 (Euler), ISI1 (L016-Hypathia), RFHT (L017-Ada) |
| Social Program | |
| 17:45 – 20:00 | Drinks reception (Forum@CWI & Newton@CC) |

| Scientific Program | Thursday 05 March |
|--------------------|---|
| 08:30 – 09:00 | Arrival and registration |
| 09:00 – 09:50 | Keynote 2 - Solution discovery in fluids with high precision using neural networks, Dr. Ching-Yao Lai (Stanford University) (Turing and streamed in Euler) |
| 09:50 – 10:30 | Coffee break |
| | Parallel sessions |
| 10:30 – 12:10 | TM-RANS1 (Turing), DR4 (Euler), FI (L016-Hypathia), Dataset (L017-Ada) |
| 12:10 – 13:20 | Lunch (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 13:20 – 15:00 | TM-RANS2 (Turing), DR5 (Euler), Urban (L016-Hypathia), Surrogate1 (L017-Ada) |
| 15:00 – 15:40 | Coffee break (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 15:40 – 17:25 | Challenge (Turing), RL1 (Euler), Maritime (L016-Hypathia), Surrogate2 (L017-Ada) |
| Social Program | |
| 19:00 – | Conference dinner (Tolhuistuin) |

| | Friday 06 March |
|---------------|--|
| 08:30 – 09:00 | Arrival and registration |
| 09:00 – 09:50 | Keynote 3 - Data over Dogma: Ruthless Empiricism, Strange Ideas, and the Future of Weather Forecasting, Dr. Daniel Worrall (Google DeepMind) (Turing and streamed in Euler) |
| 09:50 – 10:30 | Coffee break (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 10:30 – 12:10 | UQ+Q (Turing), RL2 (Euler), TM-RANS3 (L016-Hypathia), Surrogate3 (L017-Ada) |
| 12:10 – 13:20 | Lunch (Forum@CWI & Newton@CC) |
| | Parallel sessions |
| 13:20 – 15:00 | Solver (Turing), RL3 (Euler), Algo (L016-Hypathia) |
| 15:00 – 15:30 | Coffee break (Forum@CWI & Newton@CC) |
| 15:30 – 16:20 | Keynote 4 – TBD, Prof. Andrea Beek (Turing and streamed in Euler) |
| 16:20 – 16:35 | Closure |

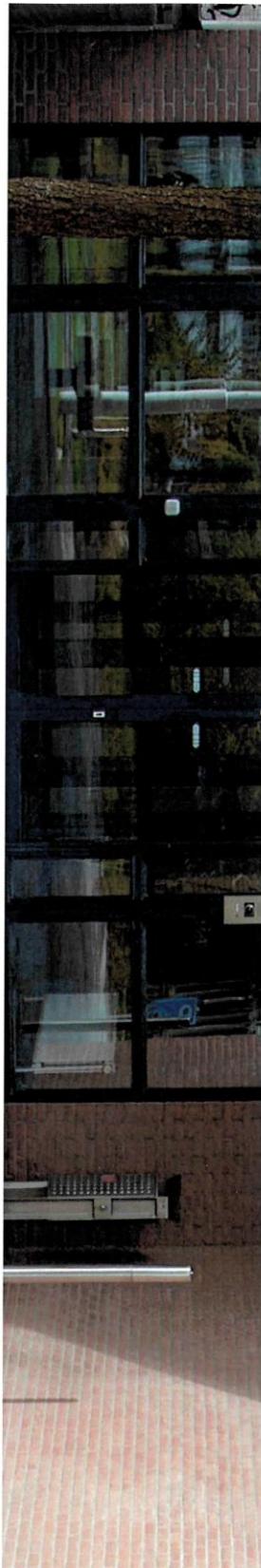


3rd ERCOFTAC Workshop on Machine Learning for Fluid Dynamics



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Detailed Program

Day 1 (Wednesday, 4th March 2026)

| | |
|---------------|--|
| 08:30 – 09:45 | Arrival and registration Room: Forum@CWI & Newton@CC |
| 09:45 – 10:00 | Conference Opening Prof. Benjamin Sanderse (chair, Centrum Wiskunde & Informatica, Eindhoven University of Technology) Room: Turing (also streamed in Euler) |
| 10:00 – 10:50 | Keynote Talk: Causality is 4-D for Scientific Discovery in Fluids Dr. Adrian Lozano Duran (California Institute of Technology) Room: Turing (also streamed in Euler) |
| 10:50 – 11:30 | Coffee break Room: Forum@CWI & Newton@CC |
| 11:30 – 12:30 | Parallel sessions (DR1, EXP, O&D1, PIML1) Room: Turing, Euler, L016-Hypathia, L017-Ada |

| | Turing Dimensionality Reduction1 (DR1) Chair: Luca Magri | Euler Experiments (EXP) Chair: David Rival | L016-Hypathia Optimization & Design1 (O&D1) Chair: Gianluca Iaccarino | L017-Ada Physics-informed ML1 (PIML1) Chair: |
|-------------|---|--|--|---|
| 11:30-11:50 | <i>Data-driven Modeling of Chaotic Plane Couette flow on a Low-dimensional Spectral Submanifold</i> Kaszas Balint, Haller George | <i>Data driven rotor-wake dynamics: from measurements to sparse governing equations</i> Amico Enrico, Cafiero Gioacchino, Montagner Sara | <i>Deep Reinforcement Learning for Airfoil Shape Optimization: A Comparative Study of PPO and SAC</i> Bedri Yagiz, Lehmkuhl Oriol | <i>Enforcing Physics the Hard Way: On Constrained ML Architectures and Their Subtle Challenges in Fluid Dynamics</i> Cabral Manuel, Font Bernat, Weymouth Gabriel D. |
| 11:50-12:10 | <i>Stochastic Closure for Stable Long-Time Forecasting of Chaotic Systems</i> Cayuela Marco, Sayadi Taraneh, Le Chenadec Vincent, Schmid Peter | <i>Data-Driven Modelling of Transient Flyer Aerodynamics through Wind Tunnel Measurements</i> Wastell Owen, Marxen Olaf, Iacobello Giovanni | <i>AI-Machine Learning Methodologies to Accelerate CFD-based Design and Optimization for Turbomachinery Applications</i> Shahpar Shahrokh | <i>Conformal Physics-Informed Convolutional Neural Network for Reynolds-Averaged Navier Stokes Equations in Ducts</i> Bokil Gaurav, Merbold Sebastian, De Graaf Stefanie |



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|-------------|---|--|---|---|
| 12:10-12:30 | <p><i>Non-intrusive oblique-projection-based model reduction with guaranteed-stable latent-space dynamics</i> Errico Cole, Padovan Alberto, Bodony Daniel</p> | <p><i>Searching for a "textbook" of gust-wing encounters</i> Olivucci Paolo, Rival David E., Srivatsan Kowshik</p> | <p><i>Machine Learning-based aerodynamic optimization of a low-Reynolds-number Outlet-Guide-Vane cascade</i> Li Shuai, Andersson Niklas</p> | <p><i>Video-conditioned physics-informed neural networks for predicting hidden fluid mechanics in two-phase flows</i> Dreisbach Maximilian, Kiyani Elham, Kriegseis Jochen, Karniadakis George, Stroh Alexander</p> |
|-------------|---|--|---|---|

12:30 – 13:45 Group picture + Lunch
Room: Forum@CWI & Newton@CC

13:40 – 15:20 Parallel sessions (DR2, TM-LES1, O&D2, PIML2)
Room: Turing, Euler, L016-Hypatia, L017-Ada

| | Turing Dimensionality Reduction2 (DR2) Chair: Andrea Novoa | Euler Turbulence Modelling-LES1 (TM-LES1) Chair: Benjamin Sanderse | L016-Hypatia Optimization & Design2 (O&D2) Chair: | L017-Ada Physics-informed ML2 (PIML2) Chair: Giovanni Stabile |
|-------------|--|---|---|--|
| 13:40-14:00 | <p><i>A Latent Diffusion Transformer for Turbulence Generation and Data Assimilation</i> Teng Hao, Steinbrenner Fabian, Turhan Baris, Xiao Heng</p> | <p><i>Machine-learning wall model of large-eddy simulation across low- and high-speed flows over rough surfaces</i> Ma Rong, Lozano-Duran Adrian</p> | <p><i>Fast LES-Based Geometry Optimization with Deep Reinforcement Learning and Solution Mapping</i> Sal Anglada Gaston, Lehmkuhl Oriol, Gomez Gonzales Samuel, Yagiz Bedri</p> | <p><i>A Generalisable Normalisation Procedure for Physics-Informed Neural Network Training Data</i> Rawden Joshua, Vanderwel Christina, Symon Sean</p> |
| 14:00-14:20 | <p><i>From Filtering to Forcing: Mimicking turbulence modeling via Data Assimilation and Machine Learning</i> Moussie Tom, Errante Paolo, Joesph Pierric, Meldi Marcello</p> | <p><i>Accelerated subgrid-scale modeling for passive scalar transport in LES of turbulent flows using data-driven methods</i> Sudhakar Surya Datta, Aditya Konduri, Lakkaraju Rajaram</p> | <p><i>Efficient Thermo-Fluid System Optimization using Invariant CNNs and Parallel Active Learning</i> Koide Yuri, Kaithakkal Arjun J., Stroh Alexander, Friederich Pascal</p> | <p><i>From Soft to Hard Turbulence: Architectural and Optimization Requirements of PINNs for Temperature Field Reconstruction in Rayleigh-Bénard Convection</i> Volk Marie-Christine, Mommert Michael, Bauer Christian, Sergent Anne, Lucor Didier, Wagner Claus</p> |
| 14:20-14:40 | <p><i>Efficient Real-Time Adaptation of ROMs for Unsteady Flows Using Data Assimilation</i> Zighed Ismael, Novoa Andrea,</p> | <p><i>Comparison of symmetry-preserving data-driven LES closures</i> Agdestein Syver Døving, Sanderse Benjamin</p> | <p><i>Multi-Objective Wind Farm Bayesian Optimisation</i> Mole Andrew, Magri Luca</p> | <p><i>Physics Informed Neural networks for downscaling on irregular meshes: reliability of convergence</i></p> |



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| | Magri Luca, Sayadi Taraneh | | | Malhomme Nemo, Stabile Giovanni |
| 14:40- 15:00 | <i>Latent-Space SINDy PDEs for Real-Time Digital Twins of Wall-Bounded Flows</i> Perez Cuadrado Miguel, Cavallazzi Giorgio Maria, Pinelli Alfredo | <i>Reinforcement-Learning-Based Wall Modeling for Turbulent Flows with Varying Pressure Gradients and Its Dependence on Subgrid-Scale Modeling</i> Bae Jane, Zhou Di | <i>Multi-Agent Reinforcement Learning for Wind Farm Optimization in Atmospheric Boundary Layer</i> Manganelli Felice, Semeraro Onofrio, Leonardi Stefano, Cherubini Stefania, De Palma Pietro | <i>Sampling and weighting enhanced Physics Informed Neural Networks for highly turbulent Rayleigh-Bénard convection</i> Mrini Soufiane, Sergent Anne, Lucor Didier, Salort Julien, Chillà Francesca |
| 15:00- 15:20 | <i>Real-time data assimilation in latent spaces for chaotic forecasting</i> Luca Magri, Özalp Elise, Novoa Andrea | | | <i>Weighting Physics and Data in PINNs: An Evaluation of Loss-Balancing Strategies for CFD</i> Correa Santiago, Díaz-Cuadro Christian, Draper Martín |

15:20 – 16:00

Coffee break

Room: Forum@CWI & Newton@CC

16:00 – 17:40

Parallel sessions (DR3, TM-LES2, ISI, RFHT)

Room: Turing, Euler, L016-Hypathia, L017-Ada

| | Turing Dimensionality Reduction3 (DR3) Chair: Taraneh Sayadi | Euler Turbulence Modelling-LES2 (TM-LES2) Chair: Jane Bae | L016-Hypathia Inference, Sensor, and Inverse (ISI) Chair: Mahdi Abkar | L017-Ada Reacting Flow and Heat Transfer (RFHT) Chair: |
|-----------------|--|--|---|--|
| 16:00- 16:20 | <i>Quantized local reduced-order modelling.</i> Colanera Antonio, Magri Luca | <i>Machine-learning-based subgrid-scale modeling and its application to flows over complex geometries</i> Ahnn Sangwoo, Kim Myunghwa, Choi Haecheon | <i>Estimating Rotor-Effective Wind Speed Using Synthetic LiDAR-Based Wind-Field Reconstruction</i> Draper Martín, Schlipf David, Díaz-Cuadro Christian, Correa Santiago | <i>Machine Learning Tools for Studying Laser-Induced Ignition in a Rocket Combustor</i> Iaccarino Gianluca |
| 16:20- 16:40 | <i>An explainable reduced-order model based on dynamic mode decomposition</i> Amor Christian, Corrochano Adrián, Le Clainche Soledad, Rosti Marco Edoardo | <i>Reduced Subgrid Scale Terms in Three-Dimensional Turbulence</i> Hockstra Rik, Edeling Wouter | <i>Aerodynamic coefficients estimation from optimized surface pressure sensor distribution with multi-output Gaussian Processes Regression using wind tunnel data</i> Bucquet Quentin, Podvin Bérengère, | <i>A data-driven reduced-order model for predicting flame dynamics via system identification</i> Novelli Chiara, Procacci Alberto, Parente Alessandro |



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|-----------------|--|--|---|---|
| | | | Iavarone Salvatore, Hanna Badoui, Braud Caroline, Guilmineau Emmanuel | |
| 16:40- 17:00 | <i>Bayesian Operator Inference for Galerkin projection closure and non-intrusive Reduced-Order Modelling</i> Procacci Alberto, Iavarone Salvatore | <i>Scalable Graph Network for Robust Sub-Grid Scale Modelling for Compressible Flows</i> Gonzalez Fernando, Larroque Anthony, Theret Aurelien, Drozda Dantas Martins Luciano, Odier Nicolas, Legaux Joffrey, Teste Olivier | <i>Smart Sensor Placement in Turbulent Flows: A Correlation-Aware Attribution Framework</i> Leung Sze Chai, Zhou Di, Bae Jane | <i>Modelling chemistry integration via deep neural networks in LES-PDF simulations of turbulent sooting flames</i> Liu Weitao, Kronenburg Andreas, Zirwes Thorsten |
| 17:00- 17:20 | <i>Proper Orthogonal Decomposition for initializing Auto-Encoders</i> Bousquet Rémi, Faucheu Alex, Nore Caroline, Lucor Didier | <i>Machine-learning-based largest-eddy simulation of turbulence and its generalisability to unseen conditions</i> Inubushi Masanobu, Satoshi Matsumoto, Susumu Goto | <i>Remember to "forget": overcoming the ill conditioned inverse problem in chaos by information theory</i> Fung Lloyd | <i>Physics-Informed Reduced-Order Modeling of Combustion Dynamics via Gaussian Process Regression and Data Assimilation</i> Lopez Constanza, Procacci Alberto, Podvin Bérengère, Iavarone Salvatore |
| 17:20- 17:40 | <i>Reduced order model-based deep learning for flow prediction</i> Fiorini Camilla, Lepage Nicolas, Mortazavi Iraj, Beneddine Samir, Thome Nicolas, Sipp Denis | | | <i>Data-driven modeling of hypersonic flows in chemical non-equilibrium with catalytic surfaces</i> Sarras Konstantinos, Magin Thierry, Schmid Peter, Sayadi Taraneh |

17:45 – 20:00

Drinks reception

Room: Forum@CWI & Newton@CC



Day 2 (Thursday, 5th March 2026)

08:30 – 09:00 Arrival and registration
Room: Forum@CWI & Newton@CC

9:00 – 9:50 **Keynote Talk:**
Solution discovery in fluids with high precision using neural networks
Dr. Ching-Yao Lai (Stanford University)
Room: Turing (also streamed in Euler)

9:50 – 10:30 Coffee break
Room: Forum@CWI & Newton@CC

10:30 – 12:10 Parallel sessions (TM-RANS1, DR4, FI, Dataset)
Room: Turing, Euler, L016-Hypathia, L017-Ada

| Turing Turbulence Modelling-RANS1 (TM-RANS1) Chair: Ali Eidi | Euler Dimensionality Reduction4 (DR4) Chair: Angello Iollo | L016-Hypathia Feature Identification (FI) Chair: Anh Khoa Doan | L017-Ada Dataset Chair: | |
|--|---|--|---|--|
| 10:30- 10:50 | <i>CFD-driven symbolic regression of RANS transition models</i> Zemmour Louenais, Cinnella Paola, Gloerfelt Xavier | <i>Physics Informed Graph Neural Networks for Nonlinear Dynamics</i> Calandriello Gennaro, Romor Francesco, Stabile Giovanni | <i>Weak Dominant Balance: A robust method for identifying structure in more complex fluid flows</i> Ahnert Samuel, Lagemann Esther, Bae Jane, Vinuesa Ricardo, Lagemann Christian, Brunton Steven | <i>BCN16-HFWind: A High-Fidelity LES Dataset and its Application to Data-Driven Urban Flow Predictions</i> Duró Josep Maria, Mestres Ernest, Hernández Fabian, Calafell Joan, Lehmkuhl Oriol, Rodriguez Ivette |
| 10:50- 11:10 | <i>Adjoint-Assisted CFD-Driven Symbolic RANS Modeling via Kolmogorov-Arnold Networks</i> Siddiqui Affan, Tian Renzhi, Dwight Richard | <i>A Reduced Order Model for predicting the dynamics of the Rayleigh-Taylor Instability</i> Granger Téo, Briard Antoine, Creusy Paul, Gréa Benoît-Joseph | <i>Feature Extraction from Complex Flow Fields: a Morphing-based Approach under Geometric Variability</i> Margheritti Riccardo, Semeraro Onofrio, Quadrio Maurizio, Boracchi Giacomo | <i>A Blended Wing Body Aircraft Dataset and Surrogate Model for Aerodynamic Predictions</i> Sung Nicholas, Spreizer Steven, Elrefaei Mohamed, Jones Matthew, Ahmed Faez |
| 11:10- 11:30 | <i>Data-driven correction of a RANS-predicted turbulent heat flux applied to high-order CFD</i> Clément Levillain, Lodato Guido | <i>Low-dimensional representation of intermittent geophysical turbulence with statistics-informed convolutional autoencoders</i> Foldes Raffaello, | <i>Sweep events characterization through LSTM network</i> Saccaggi Enrico, Zaza Domenico, Iovieno Michele, Mendez Miguel Alfonso, Di Cicca Gaetano Maria | <i>Benchmarking State-of-the-Art Machine Learning Models on the DrivAerNet++ Dataset</i> Elrefaei Mohamed |



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|-----------------|---|--|---|--|
| | | Camporeale Enrico, Marino Raffaele | | |
| 11:30- 11:50 | <i>Data-driven turbulence modelling in hypersonic flows using sparse symbolic regression</i> Calvi Paul, Gloerfelt Xavier, Breil Jérôme, Olazabal Marina, Cinnella Paola | <i>Reduced state space approach to identifying precursors to extreme events in turbulent flows</i> Kevin Schuurman, Dwight Richard, Doan Anh Khoa | <i>Predicting the linear instability eigenspectra using Deep Learning</i> Sánchez-Domínguez Miguel, De Vicente Javier, Lacasa Lucas, Chávez-Módena Miguel, Padilla-Montero Iván, Rodríguez Daniel, Valero Eusebio | <i>Identification of optimal training data for non-intrusive model reduction via operator inference</i> Rosenberger Henrik, Sanderse Benjamin, Stabile Giovanni |
| 11:50- 12:10 | <i>Correcting Differential Reynolds Stress Models Using Data-Assimilation</i> Farro Giannmarco, Content Cédric, Volpiani Pedro, Sipp Denis | <i>A physics-based and theoretically proven precursor of extreme events with covariant Lyapunov vectors</i> Consonni Riccardo, Magri Luca | <i>Neural operator-based Global Stability and Resolvent Analysis</i> Wang Chengyun, Chen Liwei, Thurey Nils | <i>Intelligent sampling for scientific model discovery: Learning to optimize and optimizing to learn</i> Larrañaga Ana, Fasel Urban, Brunton Steven L. |

12:10 – 13:20

Lunch

Room: Forum@CWI & Newton@CC

13:20 – 15:00

Parallel sessions (TM-RANS2, DR5, Urban, Surrogate1)

Room: Turing, Euler, L016-Hypathia, L017-Ada

| | Turing Turbulence Modelling-RANS2 (TM-RANS2) Chair: Heng Xiao | Euler Dimensionality Reduction5 (DR5) Chair: Gianluigi Rozza | L016-Hypathia Urban Flow (Urban) Chair: Maria Vittoria Salvetti | L017-Ada Surrogate Modelling1 (Surrogate1) Chair: Antonio Colanera |
|------------------|--|---|--|--|
| 13:20 - 13:40 | <i>Coupling data assimilation and machine learning to improve the Spalart Allmaras turbulence model for transonic flows</i> Carduner Louis, Fanizza Bartolomeo, Volpiani Pedro Stefanin, Renac Florent, Sipp Denis | <i>MOReDDPM - DDPMs for Non-intrusive Reduced-order Modeling of Parametric Fluid Flows</i> Nikken Michiel, Botteghi Nicolò, Califano Federico, Glas Silke | <i>Urban Digital Twins at City Scale: Coupling High-Fidelity CFD with Uncertainty-Aware Machine Learning</i> Kokkinakis Ioannis, Christakis Nicholas, Drikakis Dimitris | <i>Discretization Invariant Neural Field Surrogates for Large-Scale Aerodynamic Simulation</i> Catalani Giovanni, Bertrand Xavier, Tost Frédéric, Bauerheim Michaël, Morlier Joseph |
| 13:40 - 14:00 | <i>Using Field Inversion Machine Learning to model the Reynolds Stress Tensor in the SU2 RANS flow solver</i> Boxho Margaux, Goffart Nicolas, Toulorge Thomas | <i>Optimal transport-based reduced order modeling for two-phase flows</i> Khamlich Moaad, Tonicello Niccolò, Pichi Federico, Rozza Gianluigi | <i>Meta-Learning Enhanced Physics-Informed Neural Networks for Predicting Urban Canyon Wind Flows</i> Antoniou Nestoras, Laakkonen Janne, Mouzourides Petros, | <i>Towards foundation surrogate model for flow fields around wings</i> Yang Yunjia, Thurey Nils |



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|---------------------|---|--|---|--|
| | | | Neophytou Marina, Hautamäki Ville | |
| 14:00 - 14:20 | <i>Data-Driven Correction of RANS Models for Urban Flow Prediction via Data Assimilation and Machine Learning</i> Rosellini Matteo, Ursetto Aurora, Tavazzi Pietro, Mariotti Alessandro, Stabile Giovanni, Salvetti Maria Vittoria | <i>Latent-Space Model Predictive Control for Partially-Observable High-Dimensional Systems</i> Marra Luigi, Semeraro Onofrio, Mathelin Lionel, Meilán-Vila Andrea, Discetti Stefano | <i>Towards predicting urban flows with GAVI and SHRED</i> Eiximeno Benet, Miró Arnau, Duró Josep Maria, Kutz J. Nathan, Lehmkuhl Oriol, Rodriguez Ivette | <i>Lossless Domain Mapping for Learning CFD Fields across Geometries</i> Tamburini Emanuele, Cinnella Paola, Belme Anca-Claudia |
| 14:20 - 14:40 | <i>Bayesian inversion of RANS turbulence models in Flow-MRI</i> Namuroy Claire, Kontogiannis Alexandros, Juniper M.P. | <i>Predictive reduced order models of unsteady chaotic flows using transformer architecture</i> Taneja Kashish, Sayadi Taraneh, Mortazavi Iraj | <i>Neural Physics: Using machine-learning– libraries to build a differentiable physics- based solver applied to urban flows</i> Heaney Claire, Chen Boyang, Pain Christopher | <i>Machine-Learning- Based Surrogate Modeling for Stochastic Multiscale Simulation Methodology</i> Kim Changho, Xu Zihan, Nonaka Andrew, Zhu Yuanran |
| 14:40 - 15:00 | <i>Field-Inversion and Machine-Learning- Assisted Correction of the Compressible RANS Equations: Application to Shock- Wave/Turbulent Boundary-Layer Interactions</i> Fanizza Bartolomeo, Volpiani Pedro Stefanin, Renac Florent, Sipp Denis | <i>Generalization capabilities of Transformers in fluid dynamics</i> Ifaistos Theofanis, Nastorg Matthieu, Menier Emmanuel, Charpiat Guillaume, Schoenauer Marc | <i>Reflection-Equivariant Graph Neural Networks for Predicting Wind Loads on Buildings</i> Vargiemezis Themisto klis, Kanatsoulis Charilaos, Gorle Catherine | |

15:00 – 15:40

Coffee break

Room: Forum@CWI & Newton@CC

15:40 – 17:25

Parallel sessions (Challenge, RL1, Maritime, Surrogate2)

Room: Turing, Euler, L016-Hypathia, L017-Ada



| | Turing Data Challenge (Challenge) Chair: Tyler Buchanan | Euler Reinforcement Learning1 (RL1) Chair: | L016-Hypatia Maritime application (Maritime) Chair: Bernat Font | L017-Ada Surrogate Modelling2 (Surrogate2) Chair: Didier Lucor | |
|-----------------|--|---|---|--|---|
| 15:40- 16:00 | <i>CYPHER machine learning challenge 2025: a community effort for data-driven turbulent combustion modeling</i> Lorenzo Piu, Lapenna Pasquale, Bottari Stefano, Ossceily Tamara, Baffetti Tommaso, Indelicato Giuseppe, Shigematsu Kosuke, Tocilla Albina, Kazani Jonid, Attili Antonio, Parente Alessandro | 15:40- 16:00 | <i>Controlling Mode Transitions in Rotating Detonation Engines using Deep Reinforcement Learning</i> Holme Kristian, Rabault Jean, Vinuesa Ricardo, Mortensen Mikael | <i>Machine Learning approaches to predict shape sensitivities for ship hulls</i> Arian Maram Moloud, Bletsos Georgios, Schwarz Henning, Palm Michael, Rung Thomas | <i>IGM: A physics-informed deep learning model for large-scale ice-sheet flow</i> Gregov Thomas, Rosier Sebastian, Finley Brandon, Vieli Andreas, Jouvet Guillaume |
| 16:00- 16:10 | <i>FluidsBench: A benchmark for the next generation of Computational Fluid Dynamics AI models</i> Neil Ashton, Paola Cinnella, Astrid Walle, Jean Kossaifi, Hohannes Brandstetter, Richard Dwight | 16:00- 16:20 | <i>Deep Reinforcement Learning for Active Control of Vortex-Induced Vibrations</i> Alhussein Hussam, Font Bernat, Daqaq Mohammed | <i>Predicting pressure distributions on surface ship hulls using boundary graph neural networks</i> Jena Sankalp, Weymouth Gabriel, Lidtke Artur, Coraddu Andrea | <i>Downscaling simulation dynamics for regional weather forecasting</i> Jackaman James, Celledoni Elena |
| 16:10- 16:25 | <i>Presentation of the Turbulence Modelling Challenge</i> Tyler Buchanan | 16:20- 16:40 | <i>Deep reinforcement learning for heat transfer control in turbulent convection</i> Zhou Zisong, Zhu Xiaojue | <i>Prediction of ship hydrodynamic resistance with artificial neural networks</i> Lefkiou Christoforos, Koukouvinis Phoevos (Foivos), Chatzis Sotirios | <i>Proof of Concept of a Real-Time Fluid Dynamics Model for Immersive Environments Using Artificial Intelligence</i> Laot Titouan, Marchal Antoine, Perrot Vincent |
| 16:25- 16:40 | <i>Towards a machine learning-augmented one-equation turbulence model for external aerodynamics in open-source framework</i> Di Fabbio Tony, Segalerba Eric, Guerrero Rivas Joel Enrique | 16:40- 17:00 | <i>Reinforcement Learning for Complex Flows Modelling</i> Helal Isa, Giauque Alexis, Corre Christophe, Sauret Emilie | | |
| 16:40- 16:55 | <i>Data-Driven RANS Closures Using Adaptive Curvature Classifier for Vortex Flows</i> | | | | |



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| | Buchanan Tyler, West Alastair, Dwight Richard | | | |
| 16:55- 17:10 | <i>Symbolic Turbulence Modelling with Multi- Agent Reinforcement Learning</i> Tan Zing Shawn, Eidi Ali, Buchanan Tyler, Dwight Richard P. | | | |
| 17:10- 17:25 | <i>Towards a unified turbulence model through multi-objective learning</i> Wang Haochen, Liu Zhuoran, Zhao Zhuolin, Xiao Heng | | | |

19:00 –

Conference dinner (walk-in from 19:00, dinner starts at 19:30)

Tolhuisstuin, IJpromenade 2, 1031 KT Amsterdam

<https://maps.app.goo.gl/qaDZKEc9fTU6NnpC8>



Day 3 (Friday, 6th March 2026)

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|---------------|---|
| 08:30 – 09:00 | Arrival and registration Room: Forum@CWI & Newton@CC |
| 9:00 – 9:50 | Keynote Talk: Data over Dogma: Ruthless Empiricism, Strange Ideas, and the Future of Weather Forecasting Dr. Daniel Worrall (Google DeepMind) Room: Turing (also streamed in Euler) |
| 9:50 – 10:30 | Coffee break Room: Forum@CWI & Newton@CC |
| 10:30 – 12:10 | Parallel sessions (UQ+Q, RL2, TM-RANS3, Surrogate3) Room: Turing, Euler, L016-Hypathia, L017-Ada |

| | Turing Uncertainty Quantification and Quantum (UQ+Q) Chair: Richard Dwight | Euler Reinforcement Learning2 (RL2) Chair: Kamila Zdybał | L016-Hypathia Turbulence Modelling-RANS3 (TM-RANS3) Chair: Paola Cinnella | L017-Ada Surrogate Modelling3 (Surrogate3) Chair: Wouter Edeling |
|-----------------|---|--|--|--|
| 10:30- 10:50 | <i>A Surrogate-Informed Sparse Grid Interpolation for Uncertainty Quantification and Sensitivity Analysis of Complex Flows</i> Salvetti Maria Vittoria, Rosellini Matteo, Fruzza Filippo, Mariotti Alessandro, Tamellini Lorenzo | <i>Viscoelastic Turbulent Channel Drag Reduction via Opposition Control Using Multi-Agent Reinforcement Learning</i> Sharma Udit, Beneitez Miguel, Wittberg Lisa Prahl, Mirjalili Shahab, Vinuesa Ricardo, Tammisola Outi | <i>Development of a RANS Local Pressure-Gradient Closure for Transition Modeling</i> Capel Jorquera Javier, Cardesa José Ignacio, Pascal Lucas, Chávez-Módena Miguel, Valero Eusebio, González Leo Miguel | <i>Toward generative surrogate models of hydrodynamic instabilities and turbulent mixing</i> Thévenin Sébastien, Sterbentz Dane, Korner Kevin, Haberstich Cécile, Briard Antoine, Gréa Benoît-Joseph, Nadiga Balasubramanya T., Schill William, Belof Jonathan L. |
| 10:50- 11:10 | <i>Shape generative models with LDDM's flow conditional matching: an application to uncertainty quantification in hemodynamics</i> Romor Francesco, Caiazzo Alfonso, Katz Sarah | <i>Wall-to-Flow: GAN-Assisted Deep Reinforcement Learning for Turbulent Flow Control from Sparse Wall Measurements</i> Cavallazzi Giorgio Maria, Perez Cuadrado Miguel, Pinelli Alfredo | <i>Generalizable Graph Neural Operators for Field Inversion Based RANS Corrections</i> Stumpo Leonardo, Ferrero Andrea, Masseni Filippo, Pastrone Dario | <i>Flow-based generative modeling of turbulent channel flow fields</i> Aerts Frederik, Nuyens Dirk, Meyers Johan |
| 11:10- 11:30 | <i>Shape-informed surrogate modeling and applications to data assimilation and graph neural networks</i> Caiazzo Alfonso, | <i>Reinforcement learning for autonomous observation in optical velocimetry</i> Zdybał Kamila, | <i>Multi-Fidelity Data-Driven Modeling, Reynolds Number Extrapolation, and a log(Re) Solution to the Turbulence Problem</i> | <i>Temporal coherency in high-resolution 3D neural PDE surrogates</i> Luca Guastoni, Thuerey Nils |



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| | Romor Francesco, Goubergrits Leonid, Galarce Felipe, Brüning Jan | Mucignat Claudio, Lunati Ivan | Li Jiaqi, Huang George, Kunz Robert, Yang Xiang | |
| 11:30- 11:50 | <i>Solving nonlinear differential equations with quantum computers and a Fokker-Planck embedding</i> Ahmed Osama, Tennie Felix, Magri Luca | | <i>Data-Driven Turbulence Modeling using Coarse-Grid Nonlinear Super-Stencils with Wall Functions</i> Lyu Shiyu, Wang Zhong-Nan | <i>Neural Operators For Accelerating Flow Field Predictions in a 2D Compressor Cascade</i> Xavier Alan, Renson Ludovic |
| 11:50- 12:10 | <i>Learning a Surrogate Quantum Circuit for the Collision Operator in the Lattice Boltzmann Method</i> Lacatus Monica, Möller Matthias | | <i>Learning a Heat-Flux Closure for Jet-in-Crossflow Using Indirect Data</i> Zhao Zhuolin, Wang Haochen, Xiao Heng | <i>ML-based correction of coarse CFD simulations for turbomachinery flows</i> Tschisgale Silvio, Eichenhardt Timo, Kempe Tobias |

12:10 – 13:20

Lunch

Room: Forum@CWI & Newton@CC

13:20 – 15:00

Parallel sessions (Solver, RL3, Algo)

Room: Turing, Euler, L016-Hypathia

| | Turing Solver Chair: Alexis Giauque | Euler Reinforcement Learning3 (RL3) Chair: Bernat Font | L016-Hypathia Algorithms (Algo) Chair: Luca Guastoni |
|-----------------|---|---|---|
| 13:20- 13:40 | <i>Accelerating Numerical Simulations in CFD by Model Reduction and Scientific Machine Learning</i> Rozza Gianluigi | <i>SINDy-RL: Interpretable and Efficient Model-Based Reinforcement Learning</i> Zolman Nicholas, Lagemann Christian, Fasel Urban, Kutz J. Nathan, Brunton Steven L. | <i>Gaussian Artificial Entropy viscosity via machine Learning sensor</i> Limonchi Samuel, Rodriguez Ivette, Lehmkuhl Oriol |
| 13:40- 14:00 | <i>Acceleration of an AMG pressure solver using graph neural networks</i> Eric Chillon, Lidtke Artur, Doan Nguyen Anh Khoa, Font Bernat | <i>Improvement turbulence control through explainable deep learning</i> Beneitez Miguel, Cremades Andrés, Guastoni Luca, Vinuesa Ricardo | <i>An octree-based sampling algorithm for processing big simulation data</i> Geise Janis, Spinner Sebastian, Weiner Andre |
| 14:00- 14:20 | <i>diffSPH: Differentiable Smoothed Particle Hydrodynamics for Adjoint Optimization and Machine Learning</i> Winchenbach Rene, Thuerey Nils | <i>Transfer learning strategies for accelerating reinforcement-learning-based flow control</i> Saeed Salehi | <i>Stabilizing PDE-ML systems with applications to fluid dynamics</i> Stinis Panos, Howard Amanda, Ahmed Shady, Qadeer Saad |



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| 14:20-14:40 | <i>Interpretable and differentiable fluid flow solvers in latent spaces with operator learning</i> Arzani Amirhossein | <i>Gradient-enhanced reinforcement learning for fluid flow control using differentiable simulations</i> Mokbel Sajeda, Lagemann Christian, Lagemann Esther, Brunton Steven | |
| 14:40-15:00 | <i>Bridging Physics and Learning: End-to-End and Residual-Based Optimization in Differentiable Solvers</i> Saverio Luca, Bucci Michele Alessandro, Content Cédric, Sipp Denis | | |

15:00 – 15:30 Coffee break

Room: Forum@CWI & Newton@CC

15:30 – 16:20 **Keynote Talk:**
TBD
~~Prof. Andrea Beek (University of Stuttgart)~~
Room: Turing (also streamed in Euler)

16:20 – 16:35 **Closing remark**