Artur Toshev

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EDUCATION

Technical University of Munich, Ph.D. candidate 04/2021–present
Supervised by Nikolaus Adams
Topic: Data-Driven Acceleration of Particle-Based Fluid Simulations

Korea Advanced Institute of Science and Technology, exchange student 09/2019–12/2019

Technical University of Munich, M.Sc. Materials Science and Engineering 10/2018–03/2021
Specialization: Uncertainty Quantification and Mathematical Modeling
Final Grade: 1,2 (with high distinction); *Thesis*: Levy-Driven Langevin Monte-Carlo

Technical University of Munich, B.Sc. Engineering Science 10/2016–03/2019

Polytechnic University of Valencia, exchange student in mechanical engineering 02/2016–06/2016

Munich University of Applied Sciences B.Eng. Building Services Engineering 10/2013–09/2017

WORK EXPERIENCE

Research Assistant, Bavarian Center for Applied Energy Research, Germany 07/2017–12/2017
Tasks: Integration of latent heat storage into a heat pump system

Working Student, Eura Ingenieure Weißmann, Germany 05/2014–10/2017
Tasks: Technical design and monitoring of building services systems

SELECTED PUBLICATIONS

LagrangeBench: A Lagrangian Fluid Mechanics Benchmarking Suite
A. P. Toshev*, G. Galletti*, F. Fritz, S. Adami, N. A. Adams NeurIPS 2023 D&B

Accelerating Molecular Graph Neural Networks via Knowledge Distillation
F. E. Kelvinius*, D. Georgiev*, A. P. Toshev*, J. Gasteiger NeurIPS 2023

Learning Lagrangian Fluid Mechanics with E(3)-Equivariant Graph Neural Networks
A. P. Toshev, G. Galletti, J. Brandstetter, S. Adami, N. A. Adams GSI 2023

TEACHING & SUPERVISION @ TUM

Seminar AI for Science, I started this masters level course summer '23

Introduction to Scientific Machine Learning for Engineers, lecture/exercise fall '22 &'23

Turbulent flows, exercise summer '22

Students: Harish Ramachandran (M.Sc. Thesis), Gianluca Galletti (M.Sc. project), Johannes Sautier (B.Sc. Thesis), Zihao Wang (M.Sc. project), Milan Cupac (B.Sc. Thesis)

RESEARCH STAYS ABROAD, SUMMER SCHOOLS & CONFERENCES

VIII International Conference on Particle-Based Methods, Milan, Italy 10/2023
Talk: E(3) Equivariant Graph Neural Networks for Lagrangian Fluid Mechanics

Geometric Science of Information Conference, St. Malo, France 08/2023
Talk: Learning Lagrangian Fluid Mechanics with E(3)-Equivariant Graph Neural Networks

University of Amsterdam, VIS Lab, two weeks stay with Prof. Efstratios Gavves 07/2023
Topic: Coupling implicit neural representations of fluid dynamics data with GNNs

Machine Learning Summer School on Applications in Science, Kraków, Poland (poster) 06/2023

ASC school 2022: Physics meets Artificial Inte lligence, LMU, Munich, Germany (poster) 09/2022

London Geometry and Machine Learning Summer School 2022, virtual 07/2022

Swiss Equivariant Learning Workshop, EPFL, Lausanne, Switzerland (talk) 07/2022

SKILLS & SCHOLARSHIPS

Languages: Bulgarian (native), English (fluent), German (fluent), Spanish (intermediate)

Software: Linux/Windows; Python (PyTorch/JAX), Matlab, Julia, Bash, HTML, Markdown, Latex

Scholarships: Deutschlandstipendium 10/2019–03/2021; Hans-Rudolf-Stiftung 10/2018–09/2020