

CURRICULUM VITAE

January 3, 2024

MILOSLAV TORDA, PHD

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PROFESSIONAL APPOINTMENTS

present – POSTDOCTORAL RESEARCH ASSOCIATE.
2023-07 **Leverhulme Research Centre for Functional Materials Design**
University of Liverpool, United Kingdom.

2023-06 – VISITING SCIENTIST.
2023-05 **Mathematical Institute**
University of Jena, Germany.

EDUCATION

2023-07 Ph.D. in COMPUTER SCIENCE.
Faculty of Science and Engineering
University of Liverpool, United Kingdom
Thesis title: *Maximally dense crystallographic symmetry group packings for molecular crystal structure prediction acceleration.*
Advisors: Prof. J. Y. Goulermas, Prof. V. Kurlin, and Prof. G. M Day

2018-06 Master in PROBABILITY THEORY AND MATHEMATICAL STATISTICS (summa cum laude).
Faculty of Mathematics, Physics and Informatics
Comenius University, Slovakia.

2015-07 Bachelor in MATHEMATICS.
Faculty of Mathematics, Physics and Informatics
Comenius University, Slovakia.

2006-05 Master in PSYCHOLOGY
Faculty of Philosophy
Comenius University, Slovakia.

PUBLICATIONS

Manuscripts

- 2023 M. TORDA, J. Y. GOULERMAS, R. PÚČEK AND V. KURLIN, *Entropic trust region for densest crystallographic symmetry group packings*. SIAM Journal on Scientific Computing, 45.4, B493-B522.
- 2022 M. TORDA, J. Y. GOULERMAS, V. KURLIN AND G. M. DAY, *Densest plane group packings of regular polygons*, Physical Review E 106 (5), 054603.

Conference Proceedings

- 2018 M. TORDA AND I. FARKAS, *Evaluation of information-theoretic measures in echo state networks on the edge of stability*, in 2018 International Joint Conference on Neural Networks (IJCNN), 1-6. IEEE.

Manuscripts in Preparation

- R. PÚČEK AND M. TORDA, *Integral formulae for solutions of ultrahyperbolic equations and Leray residue*.
- M. TORDA, *Archimedean circle packings*.
- X. EVANGELOPOULOS, T. MU, M. TORDA, AND J. Y. GOULERMAS, *Seriesation fusion from multiple local and complete orderings*.

INVITED TALKS

- 2023 *Maximally Dense Crystallographic Symmetry Group Packings through Entropic Trust Region: An Information Geometric Perspective*. Theory Cluster Meeting, Brunner Lecture theater, University of Liverpool, United Kingdom, October 12.
- Maximally Dense Crystallographic Symmetry Group Packings through Entropic Trust Region: An Information Geometric Perspective*, Applied Geometry and Topology network meeting, Materials Innovation Factory, University of Liverpool, United Kingdom, September 21.
- Maximally Dense Crystallographic Symmetry Group Packings through Entropic Trust Region: An Information Geometric Perspective*, CaLISTA Kick-off meeting, Department of Mathematics, University of Bologna, Italy, June 5–9.
- Symmetries of maximally dense plane group packings of regular convex polygons*, Mathematics and Computer Science for Materials Innovation 2023 (MACSMIN), Materials Innovation Factory, University of Liverpool, United Kingdom, May 22–26.
- Symmetries of maximally dense plane group packings of regular convex polygons*, Oberseminar Algebra, Mathematical Institute, University of Jena, Germany, May 23.

- 2019 *Dense periodic packings in the light of crystal structure prediction.* Soft Packings, Nested Clusters and Condensed Matter. Banff International Research Station for Mathematical Innovation and Discovery, Casa Matemática Oaxaca, Mexico. September 29–October 4.

CONTRIBUTED TALKS

- 2021 *Geometry of the n -torus stochastic trust region method for materials discovery.* The British Mathematical Colloquium (BMC) and the British Applied Mathematics Colloquium (BAMC). University of Glasgow. April 6–9.
- 2019 *Dense periodic packings in the light of crystal structure prediction.* AI3SD Network+ Conference. Holiday Inn Winchester & Winchester Science Centre, United Kingdom. November 18–19.

POSTER SESSIONS

- 2023 *Geometry of the Entropic Trust Region for Maximally Dense Crystallographic Symmetry Group Packings.* Geometric Science of Information (GSI'23). Le Grand Large, Palais des Congrès, Saint Malo, France, August 30–September 1.
- 2022 *Geometry of the n -torus entropic trust region packing algorithm.* Conference on the Mathematics of Complex Data. KTH Royal Institute of Technology, Stockholm, Sweden. June 13–16.

AWARDS AND HONORS

- 2024 *Integral Formulae for Solutions of PDEs with Constant Coefficients and Their Integrability.* COST Action CA21109 - Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications (CaLISTA), Short-Term Scientific Mission grant. Joint proposal with Roland Půček. Grant period: March 1 – May 31 Awarded amount: EUR 2,000.00.
- 2023 *Exploring the Duality between Geometric Networks and Stochastic Learning Machines through the Lens of the Crystallisation Conjecture.* COST Action CA21109 - Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications (CaLISTA), Short-Term Scientific Mission grant. Joint proposal with Roland Půček. Grant period: May 1 – June 16. Awarded amount: EUR 2,000.00.
- 2018 Leverhulme Research Centre and the School of Electrical Engineering, Electronics and Computer Science, University of Liverpool, Postgraduate Research Scholarship.

MEMBERSHIPS

COST Action CA21109 - Cartan geometry, Lie, Integrable Systems, quantum group Theories for Applications (CaLISTA). Working Group 4: Vision models.

SERVICE TO PROFESSION

Reviewing papers

IEEE Transactions on Neural Networks and Learning Systems, IEEE Institute of Electrical and Electronics Engineers, Inc.

Pattern Recognition, Elsevier Science Ltd.

CONFERENCE AND WORKSHOP PARTICIPATION

2023 *Training school on Cartan Geometry*, Department of Mathematics and Statistics, Masaryk University, Brno, Czech Republic, September 4 – 8, (Awarded travel funding: EUR 500.00).

PROGRAMMING SKILLS

Matlab Julia Python R C++ Java C# Haskell Slurm

LANGUAGES

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| Slovak | Native |
| English | Fluent |
| German | Basic |