Viktor Stein

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https://viktorajstein.github.io/

Positions

08.2024 – 09.2024 **Research visit** (Wuchen Li in Columbia, South Carolina)

In the Applied Mathematics group at Technical University Berlin.

08.2023 – 01.2029 **PhD candidate** (with teaching responsibilities from 2024 on, Funded by the German Federal Ministry of Education and Research under the project "VI-Screen" until then.)

04.2023 – 07.2023 **PhD Stipend** (Researching Wasserstein gradient flows with respect to the Rényi divergence and entropy.)

06.2021 – 03.2023 **Student research assistant** (Research on Wasserstein gradient flows, writing a script for the lecture "Approximation theory" and rewriting the script for the lecture "Convex Analysis" in the setting of infinite-dimensional spaces, proofreading manuscripts.)

At the Department of Mathematics, Technical University Berlin.

10.2019 – 03.2021 **Tutor** (Giving tutorials and correcting homework for the lectures "Functional Analysis I", "Differential Equations I" and "Linear Algebra for Engineers".)

Preprints

30.04.2024 **Interpolating between Optimal Transport and KL regularized Optimal Transport using Rényi Divergences** (Joint work with Jonas Bresch, TU Berlin.)

07.02.2024 **Wasserstein Gradient Flows for Moreau Envelopes of f-Divergences in Reproducing Kernel Hilbert Spaces** (Joint work with Sebastian Neumayer, TU Chemnitz and Gabriele Steidl and Nicolaj Rux, TU Berlin.)

Teaching

Winter 2024/25 **Harmonic Analysis** (Lecture assistant)

Elective advanced module in the Mathematics program.

Summer 2024 **Convex Analysis** (Lecture assistant)

Elective advanced module in the Mathematics program.

01.2024 - 02.2024 **Numerical Mathematics I** (Lecture assistant)

Third-semester's compulsory module (in German) in the Mathematics Bachelors program.

Education

04.2021 – 05.2023 **Mathematics Master** (Technische Universität Berlin. Final grade: 1.1)

Focus on further Functional Analysis topics as well as Topology, Differential Geometry, Complex Analysis and Statistics. Master's thesis: Wasserstein gradient flows - with an eye towards positive matrix-valued measures. Supervised by Prof. Gabriele Steidl and Dr. Robert Beinert.

10.2017 – 04.2021 **Mathematics Bachelor** (Technische Universität Berlin. Final grade: 2.0)

Focus on Functional Analysis and Differential Equations with a minor in Machine Learning. Bachelor's thesis: Atomic Norm Minimisation for Superresolution. Supervised by Prof. Gabriele Steidl and Dr. Robert Beinert.

Awards

At the 17. annual Dies Mathematicus in 2022 at the TU Berlin I received a prize for the best Bachelor's thesis talk.

Volunteer work

I the school year 2022/23 I have been tutoring around fourteen seventh-graders in weekly sessions discussing mathematical puzzles and questions from the Mathematical Olympiad.

I have also served as corrector at the team competition at the Tag der Mathematik 2022 (organised by the three Berlin universities), where 69 teams of high schoolers participated.

Posters and presentations at conferences

17.–21.06.2024	**Learning and Optimization in Luminy (LOL)** (Wasserstein Gradient Flows for Moreau Envelopes of f-Divergences in Reproducing Kernel Hilbert Spaces, Poster)
11.–15.03.2024	**Workshop on Optimal transport from theory to applications - Interfacing dynamical systems, optimization and machine learning** (Wasserstein Gradient Flows for Moreau Envelopes of f-Divergences in Reproducing Kernel Hilbert Spaces, Poster)

Language skills

My native language is German. I have received English lessons since preschool and in Primary and Middle School, where many subjects were taught in English by native speakers. Furthermore I have been instructed in Spanish by native speakers from grade four to grade ten and started teaching myself French in December 2023.