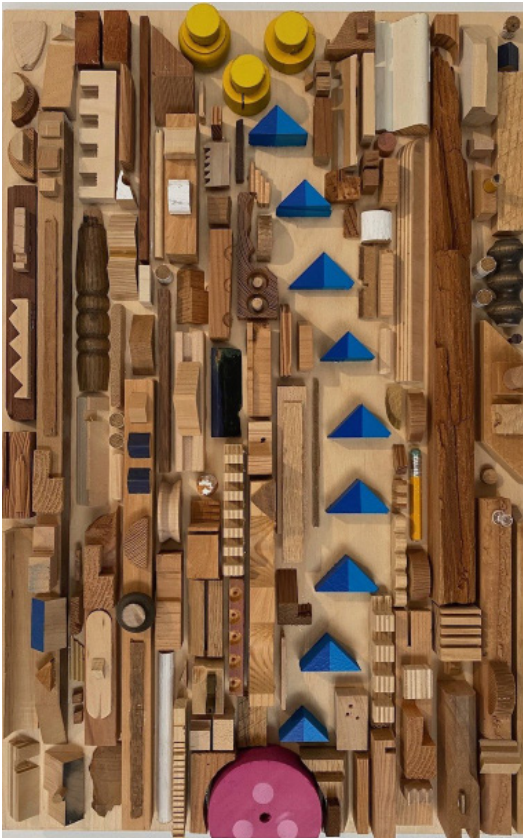## Friday 10 February 2023 at 14:15

TU Berlin, EW-Gebäude (Physics Building), room EW 201   *Tea & Cookies starting at 13:00!*

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Stephen Wright
(U Wisconsin - Madison)

Optimization in Data Science

Optimization has always played a key role in solving problems in data science, and the engagement between these areas continues to grow. In this talk, Wright will discuss how formulation and algorithmic tools from optimization have been used to address problems in computational statistics, machine learning, and AI, starting over 200 years ago with least squares and continuing today with neural networks.

Wright will also discuss the nature of current research at the interface of optimization with data science, which has both theoretical aspects (concerning the convergence of algorithms, the effectiveness of the optimization formulation in solving the underlying statistical problem, and other issues) and practical aspects (for example, the choice of algorithms and algorithmic parameters for matrix optimization problems and neural network training). Finally, some areas of ongoing research and open issues will be briefly surveyed.

Stephen J. Wright holds the George B. Dantzig Professorship, the Sheldon Lubar Chair, and the Amar and Balinder Sohi Professorship of Computer Sciences at the University of Wisconsin-Madison. His research is in computational optimization and its applications to data science and many other areas of science and engineering. He has served as Chair of the Mathematical Optimization Society (2007-2010) and as a Trustee of SIAM for the maximum three terms (2005-2014). Wright is the author and coauthor of widely used text and reference books in optimization including "Primal Dual Interior-Point Methods" and "Numerical Optimization" and, most recently, "Optimization for Data Analysis."

This event represents the opening day for the TES Mathematical Optimization for Machine Learning. In addition to the presentation of the TES schedule, there will be a reception open to all MATH+ members to celebrate the start of the TES.

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