Matthew Rudd

Associate Professor of Mathematics, Sewanee: The University of the South
Data Scientist, Databrew LLC and Hyfe AI
mbrudd@sewanee.edu matthew@databrew.cc matthewbrudd mbrudd

Experience

Data Scientist, Databrew LLC and Hyfe AI 2021–present

Author, *Regression: A friendly guide*, Manning Publications 2020–present

Associate Professor of Mathematics, Sewanee: The University of the South 2010–present

Assistant Professor of Mathematics, University of Idaho 2006–2010

VIGRE Postdoctoral Fellow, University of Texas at Austin 2003–2006

Education

Ph.D. in Mathematics, University of Utah 2003

Ph.D. Advisor: Klaus Schmitt Thesis: *Nonlinear Constrained Evolution in Banach Spaces*

M.S. in Mathematics, University of Chicago 1996

B.S. *summa cum laude* with Honors in Mathematics, Wake Forest University 1995

Service at Sewanee

Director, Sewanee DataLab 2020–2022

Chair, Department of Mathematics and Computer Science 2017–2022

Promotion and Tenure Committee 2016–2021

Standards Committee 2011–2016

Publications & work in progress

"Elementary explicit calculations of harmonic measure on planar domains," in preparation

"Median schemes for polygonal curvature flow," in preparation

"Dirichlet puzzles," in preparation

"Perron's method for p-harmonious functions," *Electron. J. Differential Equations* 2016, Paper No. 123 (with D. Hartenstine)

"Statistical exponential formulas for nonlinear diffusion," *Comm. Pure Applied Analysis* 14 (2015), no. 1, pp. 269–284

"Statistical functional equations and p-harmonious functions," *Advanced Nonlinear Studies* 13 (2013), no. 1, pp. 191–207 (with D. Hartenstine)

"Median values, 1-harmonic functions, and functions of least gradient," *Comm. Pure Applied Analysis* 12 (2013), no. 2, pp. 711–719 (with H. Van Dyke)

"Asymptotic statistical characterizations of p-harmonic functions of two variables," *Rocky Mountain J. Math.* 41 (2011), no. 2, pp. 493–504 (with D. Hartenstine)

"Positive symmetric solutions of singular semipositone boundary value problems," *E. J. Qualitative Theory of Diff. Equ.*, Spec. Ed. 1 (2009) No. 24, pp. 1–10 (with C. Tisdell)

"Existence and nonexistence results for quasilinear semipositone Dirichlet problems," *Electron. J. Differ. Equ. Conf.* 17 (2009), pp. 207–212

"Radial solutions of quasilinear semipositone boundary-value problems," *Comm. Appl. Nonlinear Anal.* 14 (2007), no. 1, pp. 113–119

"On the solvability of two-point, second-order boundary value problems," *Appl. Math. Lett.* 20 (2007), no. 7, pp. 824–828 (with C. Tisdell)

"Game-theoretic schemes for generalized curvature flows in the plane," *Electron. J. Differ. Equ. Conf.* 15 (2007), pp. 251–264

"Multiplicity results for semipositone problems on balls," *Dynam. Systems Appl.* 15 (2006), no. 1, pp. 133–146 (with S. Robinson)

"Existence of KPP fronts in spatially-temporally periodic advection and variational principle for propagation speeds," *Dyn. Partial Differ. Equ.* 2 (2005), no. 1, pp. 1–24 (with J. Nolen and J. Xin)

"A direct approach to Orlicz-Sobolev capacity," *Nonlinear Anal.* 60 (2005), no. 1, pp. 129–147

"Weak and strong solvability of parabolic variational inequalities in Banach spaces," *J. Evol. Equ.* 4 (2004), no. 4, pp. 497–517

"Solvability of nonautonomous parabolic variational inequalities in Banach spaces," *Differential Integral Equations* 17 (2004), no. 9-10, pp. 1093–1122

Nonlinear Constrained Evolution in Banach Spaces, Ph.D. thesis, University of Utah, 2003

"Variational inequalities of elliptic and parabolic type," *Taiwanese J. Math.* 6 (2002), no. 3, pp. 287–322 (with K. Schmitt)

Grants & awards

PI, *Sustaining DataLab and Expanding Its Reach in Liberal Arts Colleges* ($180,000), PIT-UN Challenge Proposal (funded by New America) Awarded October 2021

PI, *Sewanee Public Interest Data Analysis Institute* ($173,400), PIT-UN Challenge Proposal (funded by New America) Awarded October 2020

Kennedy Fellowship 2012–2014

University of Idaho Alumni Association Award for Excellence in Teaching 2008

Other experience

Passed Actuarial Exams P/1 and FM/2

Givens Research Fellow, Argonne National Laboratory Summer 2002

Programmer/Analyst, Classified Ventures Inc. 2000

Application Developer, Critical Concepts Inc. 1998–2000

References and reprints available upon request