

Curriculum Vitae

Timothy Scott Trudgian t.trudgian@adfa.edu.au

April 30, 2024

Education and Employment

BSc (Hons)

12. An improved upper bound for the error in the zero-counting formulae for Dirichlet L -functions and Dedekind zeta-functions, *Math. Comp.*, 2015, 84(293):1439{1450.
13. Linear relations of the zeroes of the zeta-function, *Math. Comp.*, 2015, 84(294):2047{2058 (with D. G. Best).
14. A still sharper region where $\psi(x) - \text{li}(x)$ is positive, *Math. Comp.*, 2015, 84(295):2433{2446 (with P. Demichel and Y. Saouter).
15. A log-free zero-density estimate and small gaps in coefficients of L -functions, *Int. Math. Res. Not. IMRN*, 2015, 12:4242{4268 (with A. Akbary).
16. Explicit bounds on the logarithmic derivative and the reciprocal of the Riemann zeta-function, *Funct. Approx. Comment. Math.*, 2015, 52(2):253{261.
17. The sum of the unitary divisor function, *Publ. Inst. Math. (Beograd) (N.S.)*, 2015, 97(111):175{180.
18. An improved explicit bound on $j \left(\frac{1}{2} + it\right)j$, *J. Number Theory*, 2015, 147:842{851 (with D. J. Platt).

35. The T_4 and G_4 construction of Costas arrays, *J. Combin. Math. Combin. Comput.*, 2017, 100:217{221 (with Q. Wang).
36. On the sum of two squares and at most two powers of 2, *Amer. Math. Monthly*, 2017, 124(8):737{740 (with D. J. Platt).
37. The Liouville function and the Riemann hypothesis, *Exploring the Riemann Zeta Function*

56. Accurate estimation of sums over zeros of the Riemann zeta-function, *Math. Comp.*, 2021, 90(332):2923{2935 (with R. P. Brent and D. J. Platt).
57. Two explicit divisor sums, *Ramanujan J.*, 2021, 56(1):141{149 (with M. Cully-Hugill).
58. Sign changes in the prime number theorem, *Ramanujan J.*, 2022, 57(1):165{173 (with D. J. Platt and T. Morrill).
59. Some explicit and unconditional results on gaps between zeroes of the Riemann zeta-function, *Trans. Amer. Math. Soc.*, 2022, 375(5):3239{3265 (with A. Simonic and C. L. Turnage-Butterbaugh).
60. Uniform effective estimates for $jL(1; \chi_j)$, *J. Number Theory*, 2022, 236:245{260 (with A. Languasco).
61. Four consecutive primitive elements in a finite field, *Math. Comp.*, 2022, 91(335):1521{1532 (with T. Jarso).
62. The mean-square of the error term in the prime number theorem, *J. Number Theory*, 2022, 238:740{762 (with R. P. Brent and D. J. Platt).
63. Wolstenholme and Vandiver primes, *Ramanujan J.*, 2022, 58(3):913{941 (with A. R. Booker, S. Hathi, and M. J. Mossingho).
64. Oscillations in the Goldbach conjecture, *J. Theor. Nombres Bordeaux*, 2022, 34:295{307 (with M. J. Mossingho).
65. Explicit lower bounds on $L(1; \chi)$, *J. Number Theory*, 2022, 240:641{655 (with M. J. Mossingho and V. V. Starichkova).
66. Primitive elements with prescribed traces, *Finite Fields Appl.*, 2022, 84(102094), 13pp. (with A. R. Booker, S. D. Cohen and N. Leong).
67. Primitive element pairs with a prescribed trace in the cubic extension of a finite field, *Bull. Aust. Math. Soc.*, 2022, 106(3):458{462 (with A. R. Booker, S. D. Cohen and N. Leong).
68. Fake Mu's, *Proc. Amer. Math. Soc.*, 2023, 151(8):3229{3244 (with G. Martin and M. J. Mossingho).
69. On the Montgomery{Odlyzko method regarding gaps between zeros of the zeta-function, *J. Math. Anal. Appl.*, 2023, 527(2), Paper No. 127548, 7pp. (with D. A. Goldston and C. L. Turnage-Butterbaugh).
70. New bounds for numbers of primes in element orders of finite groups, *Math. Nachr.*, 2023, 296:5227{5231 (with C. Bellotti and T. M. Keller).
71. An explicit upper bound for $L(1; \chi)$ when χ is quadratic, *Res. Number Theory*, 2023, 9(4), no. 72, 20pp. (with D. R. Johnston, O. Ramare).
72. Explicit zero-free regions for the Riemann zeta-function, *Res. Number Theory*, 2024, 10(1), no. 11, 27pp. (with M. J. Mossingho and A. Yang).
73. On optimal exponent pairs, To appear in *Math. Comp.* (with A. Yang).
74. Momentary logging of the Riemann zeta-function, *In preparation* (with A. Simonic).
75. Quadratic non-residues and cyclic norm-Euclidean cubic fields, *In preparation* (with B. Kerr and K. J. McGown).
76. Zeroes of real, quadratic L -functions, *In preparation* (with D. J. Platt).

Awards, Grants, and Scholarships

Discovery Project (Chief Investigator), ARC, 2024{2026
Fellow of the Australian Mathematical Society, 2023
UNSW Canberra Research Supervisor Award, 2022
UNSW GoldStar Award, 2021
Scientia Education Academy Exemplary Teaching Award: Honourable Mention, 2021
Blue Hat Award¹ 63rd annual AustMS meeting, Melbourne, 2019
Visiting Fellow and Oliver Smithies Visiting Lecturer, Balliol College, Oxford, 2019
Special Research Grant, UNSW Canberra, 2018
National Computational Infrastructure, NCMAS, 2017, 2019, 2020
Future Fellowship, ARC, 2016{2019
Discovery Project (Chief Investigator), ARC, 2016{2018
President, Number Theory Special Interest Group, AustMS, 2015{2019
Outstanding Contribution to Student Learning by an Early Career Academic, ANU, 2014
Research Travel Grant, Edinburgh Mathematical Society, 2014
Visiting Lecturers to Scotland Grant, Royal Society of Edinburgh, 2014
Discovery Early Career Researcher Award, ARC, 2012{2015
General Sir John Monash Award, 2006{2009

Supervision

Post-docs

Thomas Morrill, 2018{2020
Bryce Kerr, 2019