Robin Visser

Personal Data

Place and Date of Birth:	Cape Town, South Africa, 5 June 1996
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Web page:	https://rvisser7.github.io

Employment

10/2024 – present Postdoctoral Researcher in Number Theory
Charles University, Prague, Czech Republic
Department of Algebra, Faculty of Mathematics and Physics

Education

10/2020 – 09/2024 PhD in Pure Mathematics
University of Warwick, Coventry, United Kingdom
Thesis: The Effective Shafarevich Conjecture
Supervisor: Samir Siksek
Degree awarded June 2025.

10/2019 – 06/2020 Master of Advanced Study (MASt) in Pure Mathematics (Part III)
University of Cambridge, Cambridge, United Kingdom
Part III Essay: Large gaps between primes

01/2018 – 12/2018 Bachelor of Science (Honours) in Mathematics
Stellenbosch University, Stellenbosch, South Africa
Thesis: Computing dimensions of spaces of modular forms
Graduated cum laude with a 98% grade average.

01/2015 – 12/2017 Bachelor of Science in Mathematics, Applied Mathematics and Physics
University of Cape Town, Cape Town, South Africa
Distinction in all three majors; degree awarded with distinction

Research Interests

Computational number theory, arithmetic statistics, quadratic forms and lattices over number fields, explicit arithmetic of hyperelliptic curves, abelian surfaces, Galois representations, unit equations, Faltings's theorem (the Shafarevich conjecture).

Publications

2026 Sums of two units in number fields (with Magdaléna Tinková and Pavlo Yatsyna) *Math. Z.* **312** (2026), no. 2, Paper No. 39. DOI: 10.1007/s00209-025-03919-z

2026 Repellent properties of perfect powers on partition functions: a heuristic approach (with Summer Haag, Praneel Samanta, Swati, Holly Swisher, and Stephanie Treneer), *Res. Math. Sci.* **13** (2026), no. 2, Paper No. 40. DOI: 10.1007/s40687-026-00611-4

2026 Rectangle partitions generalizing integer partitions (with Krystian Gajdzica and Maciej Zakarczemny), *Ann. Comb.* (2026), DOI: 10.1007/s00026-026-00826-w

2025 Curves with few bad primes over cyclotomic $\mathbb{Z}_\ell$-extensions (with Samir Siksek), *Algebra Number Theory* **19** (2025), no. 1, 113–141. DOI: 10.2140/ant.2025.19.113

Preprints and Thesis

2026 Explicit Tartakowsky theorem and universality criterion sets over totally real number fields (with Vítězslav Kala, Siu Hang Man, and Pavlo Yatsyna)
arXiv:2611.21117 (2026), submitted.

2026 On integers that are representable as the sum of two units (with Volker Ziegler)
arXiv:2608.15903 (2026), submitted.

2025 Asymptotics of n-universal lattices over number fields (with Dayoon Park, Pavlo Yatsyna, and Jongheun Yoon),
arXiv:2510.26652 (2025), submitted

2024 The Effective Shafarevich Conjecture
PhD thesis, University of Warwick (2024)

2022 Potential good reduction of hyperelliptic curves
arXiv:2201.07825 (2022), submitted

In preparation

A database of indecomposable elements and sails in totally real number fields
(with Vítězslav Kala, Siu Hang Man, and Pavlo Yatsyna)

Higher genus theory and unramified quadratic extensions of biquadratic fields
(with Siu Hang Man and Pavlo Yatsyna)

Computation of b-constants in Malle's conjecture
(with Shilpi Mandal, Amanda Tucker, and Jiuya Wang)

Database of lattices in the LMFDB
(with Eran Assaf, Edgar Costa, Tommy Hofmann, Adam Logan, Stevell Muller, and David Roe)

Databases and Software

LMFDB (L-functions and Modular Forms Database), lmfdb.org — **Associate Editor**
Associate Editor since 09/2026 and member of the LMFDB development team. Contributed new data to the number fields database and to the Galois groups database. Over 50 merged pull requests to the website codebase, including code-snippet testing, software upgrades and UI improvements, and a regular reviewer of pull requests.

OEIS (On-Line Encyclopedia of Integer Sequences), oeis.org — **Associate Editor**
Associate Editor since 07/2025. Review and approve new sequences and edits submitted by contributors. Author of 54 sequences, and contributor to over 300 sequences (new terms, programs, references, and corrections).

Database of indecomposables and sails, github.com/rvisser7/indecomposables
Code and data for computing additively indecomposable totally positive elements and sails in totally real number fields. Joint project with Vítězslav Kala, Siu Hang Man, and Pavlo Yatsyna.

Malle's conjecture b-constants, github.com/rvisser7/malle_bconstant
Code and data computing the conjectured b-constants in Malle's conjecture, including Malle's original constant and the modified constants of Türkelli and Wang, for transitive permutation groups up to degree 47, in both the discriminant and the product-of-ramified-primes orderings.

Genus 2 curves, `https://rvisser7.github.io/genus2`
Database of all known genus 2 curves $C/\mathbb{Q}$ whose Jacobians have good reduction away from 2: 512 curves to date (extending the 366 of Smart), together with 234 isogeny classes of such abelian surfaces. Includes downloadable tables of models, conductors, ranks, torsion, automorphism and Sato–Tate groups, endomorphism algebras and Euler factors.

Student Supervision

10/2025 – 06/2026 BSc thesis supervisor, **Charles University**
Ondřej Lukeš, *Cohomological Aspects of Class Field Theory*

06/2025 – 09/2025 Summer project supervisor, **Charles University**
Tim Žiaran, *Rational points on elliptic curves*

Teaching Experience

10/2025 – present Course Instructor, **Charles University**
NMAL431 Advanced Algebraic Number Theory
Master's-level course (2025/26 and 2026/27) covering Dedekind domains, localisation and completion, the Galois theory of local and global fields, and an introduction to class field theory. Gave weekly lectures and fortnightly exercise classes, set exercise and homework sheets, and conducted oral examinations.

10/2020 – 06/2024 Senior Graduate Teaching Assistant, **University of Warwick**.
Teaching assistant for undergraduate courses, ranging from introductory first-year courses to advanced fourth-year modules. Responsibilities included weekly support classes, marking assignments, and invigilating and marking final examinations.

List of Warwick courses taught as a teaching assistant:

Year	Term	Course	Students	Format
2023/24	Term 1	MA3A6 Algebraic Number Theory	105	in person
2023/24	Term 1	MA142 Maths by Computer	372	in person
2022/23	Term 2	MA4H8 Ring Theory	7	in person
2022/23	Term 2	MA252 Combinatorial Optimisation	156	online
2022/23	Term 1	MA3E1 Groups & Representation	186	in person
2021/22	Term 2	MA4H9 Modular Forms	88	online
2021/22	Term 1	MA3A6 Algebraic Number Theory	153	online

10/2020 – 06/2023 First Year Supervisor, **University of Warwick**
Met small groups of first-year undergraduates twice a week, providing support for all core first-year modules (Real Analysis, Abstract Algebra, Differential Equations, Linear Algebra, Foundations of Mathematics), and marking their assignments.

02/2018 – 10/2018 Teaching Assistant, **University of Stellenbosch**,
Teaching assistant for 214 Advanced Calculus & Linear Algebra and 278 Foundations of Abstract Mathematics. Ran weekly support classes and marked assignments.

Invited Talks

08/2026 Quadratic Lattices in Prague (QLP26), Charles University, Czech Republic
Asymptotics of n-universal lattices over number fields

10/2025 Algebra and Number Theory Seminar, Oregon State University, USA
Bounds on the minimal ranks of n-universal lattices

03/2025 Number Theory Seminar, Charles University, Czech Republic
Sums of two units in number fields

11/2024 Algebra Colloquium, Charles University, Czech Republic
The Effective Shafarevich Conjecture

06/2024 Oberseminar Arithmetische Geometrie, University of Bayreuth, Germany
The Effective Shafarevich Conjecture

02/2024 Number Theory Seminar, University of Manchester, UK
The Effective Shafarevich Conjecture

01/2024 Oberseminar in Diophantine Geometry, University of Göttingen, Germany
The Effective Shafarevich Conjecture

02/2023 Junior Number Theory Seminar, University of Warwick, UK
Computing abelian varieties with good reduction outside a finite set of primes

Selected Contributed Talks

08/2026 Arithmetic Statistics, Paderborn, Germany
Higher genus theory and unramified quadratic extensions of biquadratic fields

07/2026 CAVARET 2 (Curves and Abelian Varieties), University of Barcelona, Spain
Computing genus 2 curves over $\mathbb{Q}$ whose Jacobian has good reduction away from 2 (poster)

07/2026 Algorithmic Number Theory Symposium (ANTS XVII), Groningen, Netherlands
Sums of two units in number fields (lightning talk and poster)

07/2026 ChaBONNty, MPIM Bonn, Germany
Sums of two units in number fields (lightning talk)

07/2025 LMFDB, Computation, and Number Theory (LuCaNT), ICERM, Providence, USA
Computing genus 2 curves over $\mathbb{Q}$ whose Jacobian has good reduction away from 2

07/2025 33es Journées Arithmétiques, Esch-sur-Alzette, Luxembourg.
Sums of two units in number fields

07/2024 The Mordell conjecture 100 years later, MIT, Cambridge, USA
Computing genus 2 curves over $\mathbb{Q}$ whose Jacobian has good reduction away from 2

06/2024 British Mathematical Colloquium, Manchester, UK
Computing genus 2 curves over $\mathbb{Q}$ whose Jacobian has good reduction away from 2

09/2023 Modular curves and Galois representations, Zagreb, Croatia
Abelian surfaces with good reduction away from 2 (short talk)

09/2023 Conference for Young Number Theorists in Bonn, MPIM Bonn, Germany.
Curves with few bad primes over cyclotomic $\mathbb{Z}_\ell$-extensions

09/2023 Conference for Young Researchers in Algebraic Number Theory, Cambridge, UK.
Abelian surfaces with good reduction away from 2

07/2023 LMFDB, Computation, and Number Theory (LuCaNT), ICERM, Providence, USA.
Abelian surfaces with good reduction away from 2 (lightning talk)

07/2023 32es Journées Arithmétiques 2023, Nancy, France.
Curves with few bad primes over cyclotomic $\mathbb{Z}_\ell$-extensions

Expository Talks

01/2024 Number Theory Study Group, University of Warwick
Murmurations in Arithmetic

10/2023 Warwick Maths Society
Gaps between primes

09/2023 Online Euler Systems Seminar
Kronecker's Limit Formula and L-functions of elliptic curves with CM

12/2022 Number Theory Study group, University of Warwick
Genus 2 Isogeny Cryptography

11/2022 Online Seminar on Mazur's Torsion Theorem
Eichler-Shimura and the Shimura representation

11/2022 Warwick Maths Society
Sums of three cubes

10/2022 Postgraduate Seminar, University of Warwick
Hilbert's Tenth Problem

05/2022 Postgraduate Seminar, University of Warwick
Cluster pictures for hyperelliptic curves

Service & Outreach

11/2025 **Fall School of the Department of Algebra** (Škola v přírodě) — Co-organiser
Co-organised the Department of Algebra's autumn school, a four-day school of 54 students. Reviewed proposed talk titles and abstracts, and advised students on preparing their slides and presentations.

07/2024 **International Mathematical Olympiad** - Team Guide
Team guide for Australia at the 65th IMO in Bath, UK. Accompanied the team and assisted contestants, leaders and deputies throughout the competition.

10/2023 – 11/2023 **International Student Team Competition in Mathematics** - Team Leader
Represented the University of Warwick (online) at the competition hosted in Katowice, Poland. Supervised the contest, marked scripts and coordinated the final marks.

03/2022 – 08/2023 **International Mathematics Competition for University Students** - Team Leader
Led the University of Warwick team at the 29th IMC in Blagoevgrad, Bulgaria, 2022. Marked scripts, coordinated final marks, set selection tests and ran training sessions.

02/2016 – 09/2019 **South African Programming Olympiad** - Scientific Committee Member
Technical manager: assisted with problem selection for the final round, established the online contest management system, and coached at training camps.
Accompanied the national team to the International Olympiad in Informatics (IOI) for 2016, 2017 as deputy leader and 2018 as team leader.

12/2015 – 08/2019 **South African Mathematics Foundation** - Coach
Coached at the national maths camps, and set and marked tests and monthly assignments used to select the IMO and PAMO teams.

Selected Awards

International

2016/18 International Mathematics Competition for University Students
First Prize (2016), Second Prize (2018)

2016-17 ACM International Collegiate Programming Contest
World Finalist (Phuket, Thailand 2016 and Rapid City, USA 2017)

2015 International Olympiad in Informatics
Bronze Medal (Almaty, Kazakhstan 2015)

2012-14 International Mathematical Olympiad
Bronze Medals (Santa Marta, Colombia 2013 and Cape Town, South Africa 2014)

Domestic

2014-18 South African Tertiary Maths Olympiad
First Place (2015, 2016, 2017, 2018), Third Place (2014)

2013-14 South African Programming Olympiad Final Round
Bronze (2013), Silver (2014)

2012-14 UCT Mathematical Olympiad
First Place (2014), Top Three (2012, 2013)

2011-14 Dirk van Rooy Medal, South African Mathematical Olympiad
Senior First Place (2013, 2014), Senior Runner Up (2012), Junior Runner Up (2011)

2010-14 Gold Award, UCT Mathematics Competition
First Place (2011, 2012, 2013 and 2014), Perfect Score (2014), Top Ten (2010)

Scholarships

2019 Skye Cambridge Scholarship, Cambridge
2015-17 Vice-Chancellor's Scholarship, UCT
2017 Jacob Burlak Memorial Scholarship, UCT
2017 Ivor Lewin Memorial Scholarship, UCT

Skills

General software: Linux, Git, LaTeX
Programming languages: C++, Python, Java, Matlab, Mathematica, SageMath, Magma, PARI/GP
Music: Piano - Trinity College London, Grade 8 with distinction (2014)
Marimbas - Marimba teacher certificate (2011)

Languages

English: Native
Afrikaans: Fluent (second language)
Spanish: Basic

Interests

Chess, puzzles, hiking, photography, reading, piano.

Referees

1. **Samir Siksek**
Professor, Mathematics Institute,
University of Warwick, Coventry, CV4 7AL, United Kingdom.
Email: s.siksek@warwick.ac.uk

2. **Vítězslav Kala**
Associate Professor, Department of Algebra,
Charles University, Sokolovská 83, 186 75 Praha 8, Czech Republic.
Email: vitezslav.kala@matfyz.cuni.cz

3. **Andrew V. Sutherland**
Senior Research Scientist, Department of Mathematics,
Massachusetts Institute of Technology, Cambridge, MA 02139, USA.
Email: drew@math.mit.edu

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