

EMRE CAN SERTÖZ

CURRICULUM VITAE

PROFESSIONAL EXPERIENCE

- **Postdoctoral Researcher**, 2021-09-01 (3 year position)
 - *Employer*: Leibniz University Hannover, Hannover, Germany
 - *Mentor*: Matthias Schütt
- **Postdoctoral Researcher**, 2020-10-01 to 2020-08-31
 - *Employer*: Max Planck Institute for Mathematics, Bonn, Germany
 - *Mentor*: Daniel Huybrechts
- **Postdoctoral Researcher**, 2020-04-01 to 2020-09-30
 - *Employer*: Leibniz University Hannover, Hannover, Germany
 - *Mentor*: Matthias Schütt
- **Postdoctoral Researcher**, 2017-05-01 to 2020-03-31
 - *Employer*: Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany
 - *Mentors*: Bernd Sturmfels, Mateusz Michałek

EDUCATION

- Ph.D. in Mathematics**, Humboldt University of Berlin, Germany, 2013-12-06 to 2017-09-25
 - *Title*: Enumerative geometry of double spin curves
 - *Advisor*: Gavril Farkas
 - *Co-advisor*: Gerard van der Geer
- M.Sc. in Mathematics**, Humboldt University of Berlin, Germany, 2011-10-01 to 2013-11-05
 - *Title*: Hurwitz numbers
 - *Advisor*: Gavril Farkas
- B.Sc. in Mathematics**, Bilkent University, Turkey, 2007-09-01 to 2011-06-16
 - *Title*: Fubini–Study Metric and the Fermat Quintic
 - *Advisor*: Sema Salur

SCHOLARSHIPS AND AWARDS

- *Seal of Excellence*, Marie Skłodowska-Curie actions 2019.
- *Research fellowship*, Space-Time-Matter, 2016-11-01 to 2016-12-31.
- *Scholarship of the International Research Training Group*, GRK 1800, 2013-11-01 to 2016-10-31.
- *International Fulbright Science & Technology Award 2011*, Turkey’s candidate, ranked as No.1 Offered a Fulbright fellowship. I chose to complete my studies in Humboldt with Prof. Farkas.

- *Scholarship of the Berlin Mathematical School (BMS)*, Phase I, 2011-10-01 to 2013-09-30.
- *Merit Scholarship*, Bilkent University, Top 1%, Full Scholarship, 2008 to 2011.
- *Orhan Alisbah Fellowship Award*, Bilkent University 2010,
Awarded by the Department of Mathematics of Bilkent to the most successful undergraduate student.

RESEARCH ARTICLES

Selected work are marked with an asterisk.

1. *Computing heights via limits of Hodge structures*, with S. Bloch and R. de Jong.
[arXiv:2208.00017](#).
2. *Heights on curves and limits of Hodge structures*, with S. Bloch and R. de Jong.
[arXiv:2206.01220](#).
- 3.* *Separation of periods of quartic surfaces*, with P. Lairez.
To appear in *Algebra & Number Theory*. [arXiv:2011.12316](#).
4. *Deep Learning Gauss–Manin Connections*, with K. Heal, A. Kulkarni.
Advances in Applied Clifford Algebras 32(24), 2022. [arXiv:2007.13786](#).
5. *Effective obstruction to lifting Tate classes from positive characteristic*, with E. Costa.
in “Arithmetic geometry, number theory, and computation,” *Simons Symposia*, Springer.
Pages 293–333, year 2021. [arXiv:2003.11037](#).
6. *An octanomial model for cubic surfaces*, with M. Panizzut, B. Sturmfels.
Le Matematiche, 75(2), 517–536, 2020. [arXiv:1908.06106](#).
7. *On reconstructing subvarieties from their periods*, with H. Movasati.
Rendiconti del Circolo Matematico di Palermo, II. Series (2020) [arXiv:1908.03221](#).
- 8.* *A numerical transcendental method in algebraic geometry*, with P. Lairez.
SIAM Journal on Applied Algebra and Geometry, 3 (4), 559–584, 2019. [arXiv:1811.10634](#).
- 9.* *Prym varieties of genus four curves*, with N. Bruin.
Transactions of the American Mathematical Society 373 (2020) 149–183. [arXiv:1808.07881](#).
10. *Certifying reality of projections*, with J. Hauenstein, A. Kulkarni, S. Sherman.
Lecture Notes in Computer Science, 10931, 200–208, 2018. [arXiv:1804.02707](#).
- 11.* *Computing periods of hypersurfaces*.
Mathematics of Computation 88 (320), 2987–3022, 2019. [arXiv:1803.08068](#).
12. *Computing images of polynomial maps*, with C. Harris and M. Michalek.
Advances in Computational Mathematics 45 (2019) 2845–2865. [arXiv:1801.00827](#).
13. *A compactification of the moduli space of multiple-spin curves*.
[arXiv:1701.02303](#).
14. *Enumerative geometry of double spin curves*. PhD Thesis.
Published electronically by HU library, 2017.

TEACHING EXPERIENCE

1. *Calculus for Engineers II (in German)*, Hannover, Spring 2022,
I was one of the tutors.
2. *Computational Algebraic Geometry*, Hannover, Fall 2021,
Designing my own lecture material and preparing it to be viewed online.
Publicly available on [YouTube](#).
3. *Calculus for Engineers II (in German)*, Hannover, Spring 2020,
I was one of the tutors and I prepared a final exam.
4. *Hodge theory and periods of varieties*, MPI MiS, Spring 2019, lecturer.
5. *Representation theory and complex geometry*, MPI MiS, Fall 2017, lecturer (joint with J. Torres).
6. *Intersection Theory*, Fall 2013, Humboldt University, tutor for exercise sessions.
7. *Intersection Theory*, Fall 2012, Humboldt University, frequent substitute for main lecturer.
8. *Multivariable Calculus*, Spring 2011, Bilkent University, tutor for exercise sessions.

SUPERVISION

- Advising the master's thesis of Kamillo Ferry (Leibniz University Hannover), 2022.
- Advised the master's thesis of [Samuele Pollaci](#) (University of Bonn), 2021–2022.
- Advised the master's thesis of [Rafael Mohr](#) (Leipzig University), 2019–2020.

EXTENDED RESEARCH VISITS (LASTING 2 WEEKS OR MORE)

- Instituto de Matemática Pura e Aplicada (IMPA), Rio de Janeiro, Brazil
 - Visiting researcher, 2018-10-04 to 2018-10-22
 - Visiting researcher, 2019-05-24 to 2019-06-10
- Notre Dame, South Bend, USA
 - Visiting researcher, 2018-02-02 to 2018-02-18
- Trimester Program “Periods in Number Theory, Algebraic Geometry and Physics”
 - *Hausdorff Research Institute for Mathematics*, Bonn, 2018-02-25 to 2018-03-31
- IRTG Exchange program, Visiting Graduate Student
 - *Korteweg-de Vries Institute for Mathematics*, Amsterdam, 2015-11-01 to 2016-05-01

SELECTED TALKS (OUT OF 70)

1. *Local non-Archimedean height pairing via tropical biextensions*, Intercity Seminar on Arakelov Geometry 2022, Madrid/Spain, 2022-09-13.
2. *Computing limit mixed Hodge structures*, Computational Geometry workshop, Nottingham/UK, 2022-08-29.
3. *Arithmetic self-intersections and canonical limit mixed Hodge structures*, Conference on Arakelov Geometry, Regensburg/Germany, 2021-09-07.
4. *Separation of periods of quartic surfaces*, Oberwolfach workshop Explicit Methods in Number Theory, Oberwolfach/Germany, 2021-07-22.
5. *Separating periods of quartic surfaces*, Annual meeting of the German Mathematical Society (DMV), Chemnitz/Germany, 2020-09-17.
6. *Down to characteristic p and then back up again: computations with the p -adic obstruction map*, Non-linear Algebra Seminar Online (NASO), 2020-04-07.
7. *On reconstructing subvarieties from their periods*, Number Theory Seminar at MIT, Cambridge/USA, 2020-01-07.
8. *On reconstructing subvarieties from their periods*, Algebra and algebraic geometry seminar at UiO, Oslo/Norway, 2019-11-14.
9. *Computing transcendental invariants of hypersurfaces*, Minisymposium: “Numerical methods in algebraic geometry”, SIAM Conference on Applied Algebraic Geometry 2019, Bern/Switzerland, 2019-07-11.
10. *Computing periods of hypersurfaces*, Colloquium for “Periods, Moduli spaces and the Arithmetic of Algebraic Varieties”, Mainz/Germany, 2019-06-27.
11. *Numerical transcendental methods for computing Picard and Hodge groups*, Number Theory Seminar at MIT, Cambridge/USA, 2019-01-08.
12. *Numerical methods in transcendental algebraic geometry*, Seminar “Geometria Diferencial” at IMPA, Rio/Brazil, 2018-10-16.
13. *Computing periods of hypersurfaces*, Imperial College, London/UK, 2018-04-18.
14. *Computing periods of hypersurfaces*, Applied Math Seminar, Notre Dame/USA, 2018-02-06.
15. *Computing periods of hypersurfaces*, Seminar “Computations and Proofs”, Paris/France, 2017-11-20.
16. *Enumerative geometry of double spin curves*, in KTH & SU Algebra and Geometry Seminar, Stockholm/Sweden, 2017-11-08.
17. *Enumerative geometry of theta characteristics*, Summer School in Enumerative Geometry, Trieste/Italy, July 2017.
18. *Enumerative geometry of double spin curves*, ODTÜ–Bilkent Algebraic Geometry Seminar, Ankara/Turkey, October 2017.

ORGANIZATIONAL EXPERIENCE

- Co-organizer for *Algebraic geometry through numerical computation*, ICMS 2020, 13–17 July 2020.
- Co-organizer for *Minisymposium on Riemann Surfaces*, SIAM, 9–13 July 2019, Bern/Switzerland.
- Co-editor of “Special Issue on Twenty-Seven Questions about the Cubic Surface” in *Le Matematiche*, Vol 75 No 2 (2020).
- Co-organizer for *Cubic surfaces event* in Oslo, 13 May 2019.
- Master administrator for the *Cubic Surfaces Wiki* (<http://cubics.wikidot.com>).
- Co-organizer for *Non-Linear Algebra Seminar*, December 2018 to May 2019, Leipzig/Germany.
- Co-organizer for *Numerical Computing in Algebraic Geometry*, 13–17 August 2018, Leipzig/Germany.
- Co-organizer for *Berlin Mathematical School Student Conference*, 2015-02-18/20, Berlin/Germany.

SERVICE

- In *Postdoc Hiring Committee* for Max Planck Institute MiS, Non-Linear Algebra Group, 2020.
- Referee for *Collectanea Mathematica*, *Experimental Mathematics*, *Journal of Symbolic Computation*, *International Congress for Mathematical Software*, *International Symposium on Symbolic and Algebraic Computation*.
- Student representative at Berlin Mathematical School, 2014.

LANGUAGES

- *Turkish*: Native.
- *English*: Fluent.
- *German*: Upper Intermediate, CEF B2 Level.

COMPUTER SKILLS

- *CAS*: Magma, Macaulay2, Mathematica, Maple, SageMath, MATLAB.
- *OS*: Linux, MacOS, Windows.
- *Other*: L^AT_EX, Java, Shell script, Vim.