Curriculum Vitae Radmila Sazdanovic

Department of Mathematics
rasazdan@ncsu.edu https://sazdanovic.wordpress.ncsu.edu/

Artist statement

In our visually-inundated world, there are ample opportunities to re–approach mathematics as a practical applied discipline, taught, and communicated through visual methods. Large-scale visualization offers the user to step into the graph of a function and to experience learning an equation or theorem from seeing it in real-life, through captivating, aesthetically pleasing digital objects. The best way to promote mathematics and disseminate mathematical ideas and concepts relevant to modern sciences and technology as well as the arts, is at the core of **Tess-Celestial**.

AI and other big data methodologies are omnipresent and play a prominent role in my research and art. Utilizing dimension reduction and machine learning methods, such as Ball Mapper, not only yields valuable insights into the statistical characteristics of knots but also offers compelling means to visually represent the intricate space of knots. The appeal of generative art obtained is multifaceted, encompassing both aesthetic appeal and the complexity of mathematical statements.

Honors and Awards

2020–· · · **Academy of Outstanding Faculty in Extension and Engagement** NC State

2023 **1st place, Envisioning Research Image contest** Graphics and data visualization category for faculty and staff, NC State

2020 **Outstanding Extension Award** NC State

Summer 2018 **Immersive Scholar**, Creative resident, NC State Libraries

Extension and Outreach: Publications

P. Dlotko, D. Gurnari, R. Sazdanovic, The Art of Knot Data. Proceedings of Bridges 2024: Mathematics, Music, Art, Architecture, Culture, pp 443-446.

H. Russel, R. Sazdanovic, Mathematics and Art: Unifying Perspectives, Handbook of the Mathematics of the Arts and Sciences, ISBN-13. 978-3319570716, Springer 2021, 497–525.

R. Sazdanovic, Visualizations and visual thinking in mathematics, in "On Visualization. A Multicentric Critique beyond Infographics", E. Fiorentini, J.Elinks (edts) Series "Kultur: Forschung und Wssenschaft", LIT Verlag ISBN 3-643-90535-2 (to appear) 15pp.

R. Sazdanovic, Fisheye View of Tessellations, Bridges: Mathematical Connections in Art, Music and Science, Conference Proceedings, (2012), 361–364.

R. Sazdanovic, "Experience-centered approach and Visuality in the Education of Mathematics and Physics" Kaposvar University, Kaposvar, (2012) ISBN 978-963-9821-52-1

S. Jablan, R. Sazdanovic R. Discovering symmetry of knots by using program LinKnot, Symmetry: Art and Science, The Journal of ISIS-Symmetry (2004) 102–110.

R. Sazdanovic, M. Sremcevic, Hyperbolic Tessellations by tess, Symmetry: Art and Science, 1-4 (2004) 226-229.

R. Sarhangi, S.Jablan, R. Sazdanovic, Modularity in Medieval Persian Mosaics: Textual, Empirical, Analytical and Theoretical Considerations, Bridges: Mathematical Connections in Art, Music and Science, Conference Proceedings, (2004) 281-293.

J. Barrallo, R. Sazdanovic, Computer Sculpture: A Journey Through Mathematics, Bridges: Mathematical Connections in Art, Music and Science, Conference Proceedings, (2002) 54.

Extension and Outreach: Publications (continued)

- R. Sazdanovic, M. Sremcevic, Tessellations of the Euclidean, Elliptic and Hyperbolic Plane, Symmetry: Art and Science, 2 (2002) 229-304.

Extension and Outreach: Media

- **Sciences et Avenir - Janvier 2025 - N° 935** Interview by C. Mauger for "Les théorémes a l'heure de l'innovation algorithmique"
- **Quanta Magazine November 2024** Interview for "Teen Mathematicians Tie Knots Through a Mind-Blowing Fractal" by G. Barber.
- **All the Possibilities...Reflections on a Painting by Vernon Pratt** Interview for a Documentary movie in Four Movements on mathematical inspirations of NC artist Vernon Prat for his impressive 256 canvas piece that builds on areas of mathematics related to probability, co-directed by Marsha Gordon, NC State professor of Film studies, and Louis Cherry, 2019.
- **Exploring Math Through Art** NC State Think and do video available at `https://www.youtube.com/watch?v=ONeeDvlSFU0`
- **Girls' Angle Bulletin**Interview and the cover, Volume 6, Number 2,3 2012-2013.
- **Girls Angle Bulletin** "Fun with Triangles, Inscribed Circles, and Angle Bisectors " `http://www.girlsangle.org/page/filmpage.php?num=4`

Extension and Outreach: Exhibitions

2024	Bridges 2024 Richmond, Virginia, USA
2018–	**Tesscelestial** Interactive webapp and large-scale and interactive exhibition pairing my research in mathematics and applications and my creative pursuits as an conceptual artist. Collaborative research project with NC State libraries funded by Andrew W. Mellon "Immersive Scholar" grant. Available at: `https://github.com/NCSU-Libraries/tess-celestial`
2023–	Laboratoire de Mathématiques Nicolas Oresme, Université de Caen–Normandie, Caen, France
2015–	Institute for Mathematics and Its Applications, Minneapolis, MN
2012–	David Rittenhouse Labs, University of Philadelphia, Philadelphia, PA
2010–	Rome Hall, The George Washington University, Washington DC
2020	"Women Making Art with Math", Dana School of Art, Wellesley, MA
	Liquid State, Raleigh, NC
2019	130 Anniversary Celebration, Department of Mathematics, NC State
2013	Fisheye view of Mathematics, Burrison gallery, Philadelphia, PA
2012	International Centre for Mathematical Sciences Edinburgh, UK
2011	University of Basque Country, San Sebastian, Spain
2010	Royal Flemish Academy of Belgium, Brussels, Belgium
	Rhythm and Structure: Beyond the Mathematics, International Conference in Low Dimensional Topology and Mathematical Art, Museum of Science and Industry, Tampa, FL

Extension and Outreach: Conferences and public lecures

1. Bridges 2024 Richmond, Virginia, USA	2024
2. Fall Technical Conference, Raleigh, NC	2023
3. State of the Sciences: Live! NC Science Festivals	2016–2018, 2021

4. AWM Research symposium, Women, Art, and Mathematics, Minneapolis, MN
5. MAA Paper Session on Mathematics and the Arts, Joint Mathematics Meetings, Baltimore, MD 01/19
6. 130th Math Department Anniversary Celebration, NC State, Raleigh, NC 2019
7. Coffee and Viz series in the Teaching and Visualization Lab, James B. Hunt Jr. Library 2018
8. North Carolina Science Festival: Art & Design and Science, Workshop: "Art through Math: From Plato through Da Vinci to knotted polyhedra." 2016
9. MAA Fest Invited Session Mathematics and Art, Washington DC 08/15
10. MoSAIC: Mathematics of Science, Arts, Industry and Culture Festival, NC State 2015
11. SPM-EMS-AMS Joint Meeting, Porto, Portugal 2015
12. Symposium: Perspectives on Art Education, University of Applied Arts, Vienna, Austria 2015
13. "Visualization. A critical Survey of the Concept", Humboldt-Universität zu Berlin, Institut für Kunst und Bildgeschichte, Germany 2014
14. Math Art Summit Royal Flemish Academy of Belgium, Brussels, Belgium 2012.
15. Bridges: Mathematical Connections in Art, Music and Science 2012.
16. WistKunst, Department for Architecture Sint-Lucas Gent, Belgium 2011.
17. Workshop on Algorithmic Mathematical Art: Special Cases and Their Applications, DIMACS Center, CoRE Building, Rutgers University, Newark, NJ 2009
18. The International Society for the Interdisciplinary Study of Symmetry Conference, Tihany/Budapest, Hungary 2004
19. Matomium, Sint Lucas Institute for Architecture, Brussels, Belgium 2002