Contact:
luke.wolcott@usc.edu
www.forthelukeofmath.com
www.github.com/lukewolcott
720.523.3197
Citizenship: U.S.A.

Affiliation:
University of Southern California
Department of Mathematics
3620 S. Vermont Ave., KAP 104
Los Angeles, CA 90089

Employment

Lecturer, University of Southern California, September 2016 – present
Los Angeles CA

Visiting Assistant Professor, Lawrence University, September 2014 – August 2016
Appleton WI

Visiting Researcher, Bielefeld University, April – May 2014
Supervisor: Henning Krause

Consultant, Insight Link Consulting, November 2012 – September 2014
Lisbon, Portugal; Berlin, Germany; and Portland OR
insightlinkconsulting.com

Postdoctoral Fellow, University of Western Ontario, September 2012 – July 2013
visiting Instituto Superior Técnico, Lisbon, Portugal
Supervisor: J. Daniel Christensen

Education

Ph.D., Mathematics (2006 – 2012), **University of Washington**, Seattle WA
Area: homological algebra and homotopy theory
Title: *A tensor-triangulated approach to derived categories of non-Noetherian rings*
Advisor: John Palmieri

B.A. with High Honors (1999 – 2004), **Swarthmore College**, Swarthmore PA
Majors: Mathematics, Physics

Teaching Experience

- **Solo Instructor**, university-level (*IS* indicates independent study).

  University of Southern California
  − *Math 118: Fundamental Principles of Calculus*, F16 (two sections) S17 (two sections).
  − *Math 125: Calculus I*, F16, S17.

  Lawrence University
  − *Math 120: Applied calculus I*, W15. − *Math 310: Foundations of analysis*, S16.
  − *Math 130: Applied calculus II*, S15. − *Math 545: Rings and fields*, F15.
  − *Math 140: Calculus I*, F14. − *Math 390-IS: Mathematical reasoning*, W15.
  − *Math 150: Calculus II*, F14,W16. − *Math 390-IS: Applied Linear Algebra*, S15.
  − *Math 160: Calculus III*, S15, S16. − *Math 699-IS: Category theory*, F14, W15.
  − *Math 210: Diff eqns and linear algebra*, F15. − *Math 699-IS: Category theory and philosophy*, S15.
  − *Math 300: Foundations of algebra*, W15, W16. − *Math 699-IS: Homological algebra*, S16.

University of Washington
- *−Math 111: Introduction to business math*, S08.
- *−Math 307: Introduction to differential equations*, F09, S12.
- *−Math 308: Matrix algebra with applications*, F10, W11.
- *−Math 324: Advanced multivariable calculus*, F11.

- **Solo Instructor**, middle-school level.
  Summer Stretch summer math program: *Mathematical Mysteries.* Robinson Center for Young Scholars (Seattle, WA). Summer 2011.

- **Teaching Assistant**, Mathematics Department, University of Washington.
  Nine academic quarters. Math 111, 112, 124, 125, 126, and 170. 2006 – 2012.

- **TA Mentor**, Mathematics Department, University of Washington. 2008 – 2009.

Research Interests

Triangulated category theory, homotopy theory, algebraic topology, homological algebra, derived categories
Topological data analysis, persistent homology

Mathematical phenomenology, math-art interdisciplinary creative work, contemplative pedagogy

Publications and Preprints

11. *The phenomenology of mathematical understanding,* with Alexandra Van Quynh.
    to appear in Journal of Consciousness Studies.

10. *Crossing the muddy field of witness, calling the lonely crowd: a walk to meet a sound,* with Elizabeth McTernan.
    to appear in Leonardo.

9. *When mathematicians speak, what do poets and musicians hear?*
   to appear in The Mathematical Intelligencer.

8. *Book review: Mathematics in 20th-century literature and art, by Robert Tubbs.*
   Mathematical Intelligencer (2016) 38:94.

7. *The user's guide project: giving experiential context to research papers.*
   with Cary Malkiewich, Mona Merling, David White, and Carolyn Yarnall
   Journal of Humanistic Mathematics, 5 (2015), no. 2, 186–188.

6. *Variations of the telescope conjecture and Bousfield lattices for localized categories of spectra.*
   Pacific Journal of Mathematics, 276 (2015), no.2, p.483–509.

5. *Bousfield lattices of non-Noetherian rings: some quotients and products.*
   Homology, Homotopy and Applications, 16 (2014), no.2, p.205-229.

4. *The Bridges Enschede 2013 exhibition of mathematical art.*
   Journal of Mathematics and the Arts, Vol. 7, Iss. 3-4, 2013. p.150-157.

3. *Exquisite failure: the telescope as lived object,* with Elizabeth McTernan.
   In Proceedings of Bridges 2013: Mathematics, Music, Art, Architecture, Culture. Tessellations Publishing, Phoenix, AZ, 2013.

2. *On contemplation in mathematics.*
   Journal of Humanistic Mathematics, 3 (2013), no. 1, 74-95.

1. *Imagining negative-dimensional space,* with Elizabeth McTernan.
   In Proceedings of Bridges 2012: Mathematics, Music, Art, Architecture, Culture, p. 637-642. Tessellations Publishing, Phoenix, AZ, 2012.

Math-art Work

(more info on forthelukeofmath.com)

12. *Altitude sickness: asteroids and angels,* with Elizabeth McTernan. Mathematical performance, drawings, and book. August 2015. Performed in Himachal Pradesh, India. October 2016 gallery exhibition in Berlin, Germany.

11. *Math, poetry, and improvisations.* Improvisational music based on poems based on solicited reflections of professional mathematicians. In collaboration with Lawrence University's improvisational music ensemble and creative writing club. February 2015.

10. *Bodies of data.* Four-day interdisciplinary collaborative evening workshop, bringing together mathematicians and local dancers during the 2014 MathFest conference in Portland OR. August 2014.

9. *The coastline paradox*, with Elizabeth McTernan. Performed measurement of the fractal dimension of a nameless Danish island, in collaboration with the Funen Art Academy (Denmark). July 2013.

8. *I wanna dance with somebody: An evening of mathematics and art in dialogue.* Math-art salon event organized with the Center for Symmetry and Deformation at the University of Copenhagen Department of Mathematics (Denmark). July 2013.

7. *Telescope*, with Elizabeth McTernan. Ink on paper, plexiglass, magnifying lens. 2013. Exhibited in the art exhibition of 2013 Bridges conference.

6. *Ham sandwich theorem demo attempt.* Video. 2012.

5. *Sizes of infinity.* Math-art salon event organized with Elizabeth McTernan (Berlin, Germany). December 2012.

4. *Imagining negative-dimensional space*, with Elizabeth McTernan. Performance/lecture and ritual performance. Performed at 2012 Bridges conference.

3. *The Spiral Fugue*, with musician Traeden Mathews. Music based on Ph.D. research. On the album *Frequencies of Shake* by Branch. 2011.

2. *The story of my first theorem.* Performance piece. 2010.

1. *Cuculetsu*, with visual artist Shannon Wallace. Video. 2010. Screened at the short film festival at 2012 Bridges conference.

Non-technical Mathematical Writing

- *Gardens of Infinity.* 2015.
  Created, designed, and wrote content for a high-concept interactive website on Cantor's set theory, in collaboration with interaction designer and programmer. gardensofinfinity.com

- *Enchiridion: Mathematical User's Guides.* 2014 – 2016.
  Collaboratively wrote two expository meta-papers about experiential contexts of published research papers. mathusersguides.com.

- *Contemplative Mathematics Pedagogy Wiki.* 2015.
  Contributed pages on pedagogy used in my classrooms, including materials and feedback.

- Popular math essays. 2009 – present.
  Wrote over two dozen short essays revealing contemporary mathematics to a general audience. forthelukeofmath.com

- American Mathematical Society Graduate Student Blog. 2011 – 2012.
  Contributed seven posts. blogs.ams.org/mathgradblog/author/wolcott/

- *Flavors and Seasons* blog. 2011 – 2013.
  Created and maintained personal blog documenting cognitive and meta-cognitive experience of research mathematics. flavorsandseasons.wordpress.com

- *My name is not Susan: a love story between mathematics and non-mathematics.* 2009.
  Collection of essays on the mathematical experience, self-published via Lulu. 142 pp.

Service and Professional Activity

- **Creator, Contributor, and Lead Editor.** *Enchiridion: Mathematical User's Guides.*
  mathusersguides.com. 2014 – present.

- **Faculty mentor**. Lawrence University GLOW (Gay, Lesbian, or Whatever) club. 2016.

- **Contributed Paper Session Co-Organizer**. *Contemplative Pedagogy and Mathematics*. 2016 AMS/MAA Joint Meetings.
- **Creator and Editor.** *Contemplative Mathematics Pedagogy Wiki*.
  contemplativemathematicspedagogy.wikispaces.com. 2015 – present.
- **Conference Program Committee member**. Bridges: Mathematics, Music, Art, Architecture, Culture. 2014, 2015, and 2016.
- **Referee**. *Homology, Homotopy, and Applications; Journal of Humanistic Mathematics; Bridges Conference Proceedings (2014, 2015, and 2016)*.
- **Reviewer**.
  Zentralblatt MATH. 2013 – 2016.
  Mathematical Reviews. 2014 – 2016.
- **Editor, Blog Writer**. AMS Graduate Student Blog. 2011 – 2012.
- **Lead Organizer and Facilitator**, The Mathematical Experience Seminar.
  University of Washington. Spring 2008 and spring 2010.
- **Lead Organizer**, West Coast Algebraic Topology Summer School.
  University of Washington. August 26 – 28, 2011.
- **Judge**. Math Circle Olympiad, University of Washington. 2011.
- **Committee member**. VIGRE Undergraduate Mathematical Sciences Seminar Committee.
  University of Washington. 2009 – 2010.
- **Volunteer**. Exploration in Math's MathFest (Seattle, WA). 2008 and 2009.
- **Memberships**:
  – Mathematical Association of America
  – American Mathematical Society
  – Association for Contemplative Mind in Higher Education

Academic Honors

- University of Washington Mathematics Department Teaching Excellence Award. 2011.
- University of Washington VIGRE Fellowship. 2009 – 2010.
- University of Washington Mathematics Department Academic Merit Award. 2006 – 2012.
- University of Washington Graduate School Top Scholar Award. 2006 – 2007.
- Swarthmore College Mathematics REU, with Cheryl Grood. Summer 2001.
- Swarthmore College Morris Monsky Prize in Mathematics, for outstanding promise and enthusiasm. 2000.

Research Visits

- University of Lisbon (Portugal). 14 – 18 June 2015.
- University of Bielefeld (Germany). 1 April – 14 May 2014.
- Radboud Universiteit Nijmegen (The Netherlands). 3 – 10 May 2014.
- University of Barcelona (Spain). 28 May – 3 June 2013.
- University of Copenhagen (Denmark). 12 – 15 May 2013.
- University of Seville (Spain). 29 April – 3 May 2013.
- University of Bielefeld (Germany). 17 – 20 October 2012.

Talks

- *Contemplating infinity: mathematics and mindfulness.* USC Center for Excellence in Teaching, Faculty Forum. February 2017.
- *Interactive software for topological data analysis.* 2017 AMS/MAA Joint Meetings (Atlanta, GA). January 2017.
- *The effects of altitude sickness on mathematical cognition.* 2017 AMS/MAA Joint Meetings (Atlanta, GA). January 2017.

- *Contemplative pedagogy and STEM: A mathematics example and open discussion.* National ACMHE Conference. October 2016.

- *An interactive introduction to topological data analysis.* Math Colloquium. Northern Michigan University. April 2016.

- *The user's guide project: giving experiential context to research papers.* 2016 AMS/MAA Joint Meetings (Seattle, WA). January 2016.

- *Gardens of infinity: Cantor meets the real deep Web.* 2016 AMS/MAA Joint Meetings (Seattle, WA). January 2016.

- *The mathematics of walking in the Himalayas.* Science Hall Colloquium. Lawrence University. October 2015.

- *Bousfield lattice invariants of triangulated symmetric monoidal categories.* AMS/EMS/SPM International Meeting (Porto, Portugal). June 2015.

- *A classification of math-art work.* AMS/EMS/SPM International Meeting (Porto, Portugal). June 2015.

- *Panel discussion on "Math, poetry, and improvisations" collaboration.* Math tea. Lawrence University. February 2015.

- *Conditional convergence in the process of math and art: a case study.* Science Hall Colloquium. Lawrence University. November 2014.

- *Report on the 'Bodies of Data' workshops.* MAA MathFest (Portland, OR). August 2014.

- *Telescope conjectures and Bousfield lattices for localized categories of spectra.* Algebraic Topology seminar. Radboud University (The Netherlands). May 2014.

- *A topological localizing subcategory that isn't a Bousfield class.* BIREP seminar. University of Bielefeld (Germany). April 2014.

- *A gentle introduction to category theory: architecture of the universe or abstract nonsense?* Lawrence University. March 2014.

- *Telescope conjectures and Bousfield lattices for localized categories of spectra.* Satellite Conference on Homotopy Theory at JMM 2014 (Baltimore, MD). January 2014.

- *Bousfield lattices and smashing localizations of local categories.* Young Topologists' Meeting. EPFL (Lausanne, Switzerland). July 2013.

- *Exquisite failure: The telescope as lived object.* Bridges conference: Mathematics, Music, Art, Architecture, Culture (Enschede, The Netherlands). July 2013.

- *Bousfield lattices, quotients, ring maps, and non-Noetherian rings.*
  – Algebra seminar, Instituto Superior Técnico (Lisbon, Portugal). January 2013.
  – Algebra seminar, University of Seville (Spain). May 2013.
  – Topology seminar, University of Copenhagen (Denmark). May 2013.
  – Homotopy Methods in Algebra, Geometry and Topology conference (Spain). May 2013.

- *The co-evolution of math and mathematicians.* Mathematical Practice seminar. Center for Philosophy of Science of the University of Lisbon (Portugal). February 2013.

- *Different sizes of infinity.* Madam M's Berlin salon (Germany). December 2012.

- *A non-Noetherian graded mess: some Bousfield lattice products and quotients.* BIREP seminar. University of Bielefeld (Germany). October 2012.

- *Imagining negative-dimensional space.* Bridges conference: Mathematics, Music, Art, Architecture, Culture. Towson University. July 2012.

- *Not every object in the derived category of a ring is Bousfield equivalent to a module.* Algebra seminar, University of Washington. June 2012.

- *A tensor-triangulated approach to derived categories of non-Noetherian rings.* Final Exam, University of Washington. May 2012.

- *It's not right, but it's okay: New math-art works.* Current Topics seminar, University of Washington. January 2012.

- *Three stories from the math-art frontier.* 2012 AMS/MAA Joint Meetings (Boston, MA). January 2012.

- *Ring maps, derived categories, and the Bousfield lattice.* 2012 AMS/MAA Joint Meetings (Boston, MA). January 2012.

- *Recent stories from the math-art frontier.* Banff International Research Station (Banff, Canada). Workshop 11w5070: "Mathematics: Muse, Maker, and Measure of the Arts." December 2011.

- *Ring maps, derived categories, and the Bousfield lattice.* Algebra seminar, University of Washinton. October 2011.

- *Set theory questions in homotopy theory.* Advanced Course on Large-cardinal Methods in Homotopy, University of Barcelona (Spain). September 2011.

- *Structure within Bousfield lattices.* West Coast Algebraic Topology Summer School, University of Washington. August 2011.

- *Negative-dimensional space* and *An introduction to groups.* Hillside Student Community (Bellevue, WA). February 2011.

- *Cohomological Bousfield classes in stable homotopy categories.* General Exam, University of Washington. June 2010.

- *The codependent arising of math and mathematicians, and where do we go from here?* Washington State Community College Math Conference 2010 Annual Meeting, Yakima Valley Community College (Yakima, WA). May 2010.

- *The codependent arising of math and mathematicians.* Pacific Northwest MAA 2010 Annual Meeting, Seattle University. April 2010.

- *A gentle introduction to category theory: architecture of the universe or abstract nonsense?*
  – Undergraduate Mathematical Sciences seminar, University of Washington. January 2010.
  – Undergraduate Math Club, University of Washington. November 2010.

- *An introduction to the category of spectra.* Current Topics seminar, University of Washington. January 2010.

- *Where arithmetic comes from.* The Mathematical Experience seminar, University of Washington. April 2008 and April 2010.

Conference and Workshop Attendance/Participation

- AMS/MAA Joint Meetings (Atlanta, GA). January 2017. **Speaker (×2)**.

- Transforming Higher Education: Fostering Contemplative Inquiry, Community, and Social Action. ACMHE annual conference. (Amherst, MA). October 2016. **Presenter**.

- AMS/MAA Joint Meetings (Seattle, WA). January 2016. **Speaker (×2)**.

- AMS/EMS/SPM International Meeting. (Porto, Portugal). June 2015. **Speaker (×2)**.

- Midwest Topology Seminar. University of Chicago (Chicago, IL). May 2015.

- International Symposium for Contemplative Studies (Boston, MA). November 2014.

- Midwest Topology Seminar. Northwestern University (Evanston, IL). October 2014.

- Contemplative Practices in Higher Education. Omega Institute (Rhinebeck, NY). August 2014.

- MAA MathFest (Portland, OR). August 2014. **Speaker**.

- AMS/MAA Joint Meetings (Baltimore, MD). January 2014. **Speaker**.

- Bridges: Mathematics, Music, Art, Architecture, Culture. Saxion University (Enschede, The Netherlands). July 2013. **Speaker, Art Critic**.

- Young Topologists' Meeting. EPFL (Lausanne, Switzerland). July 2013. **Speaker**.

- Homotopy Methods in Algebra, Geometry and Topology. Universitat Politècnica de Catalunya (Barcelona, Spain). May 2013. **Invited speaker**.

- ASPECTS of Topology. Oxford University (England). December 2012.

- The Art and Science of Contemplative Teaching and Learning: Exploring Ways of Knowing. Garrison Institute (Garrison, NY). November 2012.

- Mathematics and Intuition. Center for Philosophy of Science of the University of Lisbon (Portugal). September 2012.

- Mathematical Cultures I. De Morgan House (London, England). September 2012.

- Seattle summer school. "Cohomology and support in representation theory and related topics." University of Washington. July 2012.
- Bridges: Mathematics, Music, Art, Architecture, Culture. Towson University. July 2012. **Speaker, Filmmaker.**
- Cascade Topology Seminar. University of British Columbia (Vancouver, Canada). April 2012.
- AMS/MAA Joint Meetings (Boston, MA). January 2012. **Speaker ($\times 2$).**
- Banff International Research Station (Banff, Canada). Workshop 11w5070: "Mathematics: Muse, Maker, and Measure of the Arts." December 2011. **Invited speaker.**
- Advanced Course and Workshop on Large-Cardinal Methods in Homotopy. IMUB, University of Barcelona (Spain). September 2011. **Invited speaker.**
- West Coast Algebraic Topology Summer School. University of Washington. August 26 – 28, 2011. **Lead Organizer, Speaker.**
- Association for Contemplative Mind in Higher Education Regional Meeting (Whidbey Island, WA). July 2011.
- Banff International Research Station (Banff, Canada). Workshop 11w5009: "Triangulated Categories and Applications." June 2011.
- Cascade Topology Seminar. University of Washington. November 2010.
- Washington State Community College Math Conference (Yakima, WA). June 2010. **Speaker.**
- Pacific Northwest MAA Annual Meeting (Seattle, WA). April 2010. **Speaker.**
- AMS/MAA Joint Meetings (Washington, DC). January 2009.
- Washington State Community College Math Conference (Lake Chelan, WA). May 2008.
- Deviant Art Festival (Trollhättan, Sweden). July 2007. **Mathematical consultant.**

Miscellaneous

- Programming languages:
  – comfortable with C, Python, R, MATLAB/Octave, LaTeX, Processing
  – conversational in HTML, CSS, R Markdown, Mathematica, Sage
- 66 countries visited; over five years cumulatively spent outside the USA.
- avid rock climber, motorcycle enthusiast, and nature lover.
- Iyengar yoga practitioner since 2000; Buddhist meditation practitioner since 2006.
- walked the entire 2,174-mile Appalachian Trail in 2004.
- multi-faceted musician: trained in Indian tabla, Cuban bata, West African drumming, Balinese gamelan, Japanese taiko, and piano; performance experience in Seattle, Los Angeles, Philadelphia, and New York City (including Carnegie Hall).
- diverse non-mathematical work experience, including: lifeguard, farmer, stone worker, construction worker, Lawrence Berkeley National Laboratory physics intern, election worker, apple picker, sailboat deckhand.