

# Zachary P. Kilpatrick

<http://www.colorado.edu/amath/zpkilpat>

University of Colorado Boulder, Assistant Professor, Applied Mathematics (zpkilpat@colorado.edu)

## EDUCATION

**2005 – 2010** University of Utah: PhD in Mathematics; M.S. in Mathematics

**2001 – 2005** Rice University: B.A. in Computational and Applied Mathematics; B.A. in History

## ACADEMIC APPOINTMENTS

**2016 –** University of Colorado Boulder, Assistant Professor, Applied Mathematics

**2016 –** University of Colorado School of Medicine, Affiliate Faculty, Physiology & Biophysics

**2016 – 2018** University of Houston, Research Assistant Professor, Mathematics

**2012 – 2016** University of Houston, Assistant Professor, Mathematics

**2010 – 2012** University of Pittsburgh, NSF Mathematical Sciences Postdoctoral Research Fellow

## EXTERNAL RESEARCH GRANTS

amount to Kilpatrick in **bold**

**2017 –** NIH – National Institute of Mental Health (co-PI with J. Gold & K. Josić: **\$365,580**)  
*CRCNS: Decision making in changing environments*

**2016 –** NSF DMS – Mathematical Biology (sole PI: **\$234,000**)  
*Robust spatiotemporal dynamics in multi-layer neuronal networks*

**2015 –** NSF DMS – Mathematical Biology (co-PI with K. Josić: **\$164,722**)  
*The ever-changing network: How changes in architecture shape neural computations*

**2013 – 2017** NSF DMS – Mathematical Biology (sole PI: **\$184,937**)  
*Architecture for robust spatiotemporal dynamics in neuronal networks*  
*Robust neural field models for decision making with multiple alternatives*

**2010 – 2012** NSF DMS Postdoctoral Research Fellowship (sole PI: **\$135,000**)

## CONFERENCE GRANTS AND INTERNAL GRANTS

**2016 – 2017** NSF DMS – Conference Proposal (PI with J. Gjorgjieva & R. Rosenbaum: **\$20,000**)

**2016 – 2017** Burroughs Wellcome Fund – Conference Award (co-PI with J. Gjorgjieva: **\$5,000**)

**2016 – 2017** SIAM – Conference Award (co-PI with J. Gjorgjieva & R. Rosenbaum: **\$5,000**)  
*International Conference on Mathematical Neuroscience*

**2013 – 2014** University of Houston, GEAR (co-PI with K. Josić: **\$30,000**)  
*Forecasting in biological networks: How organisms see the future*

**2013** University of Houston, New Faculty Research Grant (sole PI: **\$6,000**)

## REFEREED JOURNAL ARTICLES

undergrads\*; grad students‡; postdocs‡; co-first<sup>⊕</sup>; co-last<sup>⊕</sup>

1. A.E. Radillo<sup>⊕</sup>, A. Veliz-Cuba<sup>⊕</sup>, K. Josić<sup>⊕</sup>, & Z.P. Kilpatrick<sup>⊕</sup>, *Performance of normative and approximate evidence accumulation on the dynamic clicks task*, **Neurons, Behavior, Data Analysis, & Theory** submitted.
2. Z.P. Kilpatrick, W.R. Holmes, T.L. Eissa<sup>†</sup>, & K. Josić, *Optimal models of decision-making in dynamic environments*, **Curr. Opin. Neurobiol.** submitted. **arXiv:** <https://arxiv.org/abs/1812.01727>
3. B. Karamched, S. Stolarczyk, Z.P. Kilpatrick<sup>⊕</sup>, & K. Josić<sup>⊕</sup>, *Optimal evidence accumulation on social networks*, **SIAM Rev.** submitted. **arXiv:** <https://arxiv.org/abs/1810.05909>
4. K.P. Nguyen<sup>‡</sup>, K. Josić<sup>⊕</sup>, & Z.P. Kilpatrick<sup>⊕</sup>, *Optimizing sequential decisions in the drift-diffusion model*, **J Math. Psychol.** 88 (2019) pp. 32-47.

5. N. Krishnan\* & Z.P. Kilpatrick, *Optimizing a jump-diffusion model of a starving forager*, **Phys. Rev. E** 98 (2018) 052406.
6. G. Faye & Z.P. Kilpatrick, *Threshold of front propagation in neural fields: An interface dynamics approach*, **SIAM J Appl. Math.** 78 (2018), pp. 2575-2596.
7. Z.P. Kilpatrick, *Synaptic mechanisms of interference in working memory*, **Sci. Rep.** 8 (2018) 7879.
8. N. Krishnan\*, D.B. Poll<sup>‡</sup>, & Z.P. Kilpatrick, *Synaptic efficacy shapes resource limitations in working memory*, **J. Comput. Neurosci.** 44 (2018), pp. 273-295.
9. Z.P. Kilpatrick & D.B. Poll<sup>‡</sup>, *Neural field model of memory-guided search*, **Phys. Rev. E** 96 (2017), 062411.
10. D.B. Poll<sup>‡</sup> & Z.P. Kilpatrick, *Velocity integration in a multilayer neural field model of spatial working memory*, **SIAM J Appl. Dyn. Syst.** 16 (2017), pp. 1197-1234.
11. A.E. Radillo, A. Veliz-Cuba, K. Josić<sup>Ⓢ</sup>, & Z.P. Kilpatrick<sup>Ⓢ</sup>, *Evidence accumulation and change rate inference in dynamic environments*, **Neural Comput.** 29 (2017), pp. 1561-1610.
12. A. Jacot-Guillarmod<sup>Ⓢ</sup>, Y. Wang<sup>Ⓢ</sup>, C. Pedroza, H. Ögmen, Z.P. Kilpatrick<sup>Ⓢ</sup>, & K. Josić<sup>Ⓢ</sup>, *Extending Levelt's Propositions to perceptual multistability involving interocular grouping*, **Vision Res.** 133 (2017), pp. 37-46.
13. Z.P. Kilpatrick, *Ghosts of bump attractors in stochastic neural fields: Bottlenecks and extinction*, **Discrete Contin. Dynam. Syst. Ser. B** 21 (2016), pp. 2211-2231.
14. Z.T. McCleney\* & Z.P. Kilpatrick, *Entrainment in up and down states of neural populations: non-smooth and stochastic models*, **J. Math. Biol.** 73 (2016), pp. 1131-1160..
15. D.B. Poll<sup>‡</sup> & Z.P. Kilpatrick, *Persistent search in confined domains: a velocity-jump process model*, **J. Stat. Mech.** (2016), 053201.
16. D.B. Poll<sup>‡</sup>, K. Nguyen\*, & Z.P. Kilpatrick, *Sensory feedback in a bump attractor model of path integration*, **J. Comput. Neurosci.** 40 (2016), pp. 137-155.
17. A. Veliz-Cuba<sup>†</sup>, Z.P. Kilpatrick<sup>Ⓢ</sup>, & K. Josić<sup>Ⓢ</sup>, *Stochastic models of evidence accumulation in changing environments*, **SIAM Rev.** 58 (2016), pp. 264-289.
18. A. Veliz-Cuba<sup>†</sup>, H.Z. Shouval, K. Josić<sup>Ⓢ</sup>, & Z.P. Kilpatrick<sup>Ⓢ</sup>, *Networks that learn the precise timing of event sequences*, **J Comput. Neurosci.** 39 (2015), pp. 235-254.
19. D.B. Poll<sup>‡</sup> & Z.P. Kilpatrick, *Stochastic motion of bumps in planar neural fields*, **SIAM J Appl. Math.** 75 (2015) pp. 1553-1577.
20. Z.P. Kilpatrick, *Stochastic synchronization of neural activity waves*, **Phys. Rev. E** 91 (2015), 040701(R).
21. P.C. Bressloff & Z.P. Kilpatrick, *Nonlinear Langevin equations for wandering patterns in stochastic neural fields*, **SIAM J Appl. Dyn. Syst.** 14 (2015), pp. 305-334.
22. Z.P. Kilpatrick, *Delay stabilizes stochastic motion of bumps in layered neural fields*, **Physica D** 295 (2015), pp. 30-45.
23. Z.P. Kilpatrick & G. Faye, *Pulse bifurcations in stochastic neural fields*, **SIAM J Appl. Dyn. Syst.** 13 (2014), pp. 830-860.
24. J.K. Kim<sup>†</sup>, Z.P. Kilpatrick, M.R. Bennett, & K. Josić, *Molecular mechanisms that regulate the coupled period of the mammalian circadian clock*, **Biophys. J** 106 (2014), pp. 2071-2081.
25. Z.P. Kilpatrick, *Coupling layers regularizes wave propagation in stochastic neural fields*, **Phys. Rev. E** 89 (2014), 022706.
26. S. Carroll\*, K. Josić, & Z.P. Kilpatrick, *Encoding certainty in bump attractors*, **J Comput. Neurosci.** 37 (2014), pp. 29-48.

27. Z.P. Kilpatrick, B. Ermentrout, & B. Doiron, *Optimizing working memory with heterogeneity of recurrent cortical excitation*, **J Neurosci.** 33 (2013), pp. 18999-19011.
28. Z.P. Kilpatrick, *Interareal coupling reduces encoding variability in multi-area models of spatial working memory*, **Front. Comput. Neurosci.** 7 (2013), 82.
29. Z.P. Kilpatrick & B. Ermentrout, *Wandering bumps in stochastic neural fields*, **SIAM J Appl. Dyn. Syst.** 12 (2013), pp. 61-94.
30. Z.P. Kilpatrick, *Short term synaptic depression improves information transfer in perceptual multistability*, **Front. Comput. Neurosci.** 7 (2013), 85.
31. S.M. Jayasuriya\* & Z.P. Kilpatrick, *Effects of time-dependent stimuli on a competitive neural network model of perceptual rivalry*, **Bull. Math. Biol.** 6 (2012), pp. 1396-1426.
32. Z.P. Kilpatrick & B. Ermentrout, *Response of traveling waves to transient inputs in neural fields*, **Phys. Rev. E** 85 (2012), 021910.
33. Z.P. Kilpatrick & G.B. Ermentrout, *Hallucinogen persisting perception disorder in neuronal networks with adaptation*, **J Comput. Neurosci.** 32 (2012), pp. 25-53.
34. Z.P. Kilpatrick & G.B. Ermentrout, *Sparse gamma rhythms arising through clustering in adapting neuronal networks*, **PLoS Comput. Biol.** 7 (2011), e1002281.
35. P.C. Bressloff & Z.P. Kilpatrick, *Two-dimensional bumps in piecewise smooth neural fields with synaptic depression*, **SIAM J Appl. Math.** 71 (2011), pp. 379-408.
36. Z.P. Kilpatrick & P.C. Bressloff, *Binocular rivalry in a competitive neural network model with synaptic depression*, **SIAM J Appl. Dyn. Syst.** 9 (2010), pp. 1303-1347.
37. Z.P. Kilpatrick & P.C. Bressloff, *Stability of bumps in piecewise smooth neural networks with nonlinear adaptation*, **Physica D** 239 (2010), pp. 1048-1060.
38. Z.P. Kilpatrick & P.C. Bressloff, *Spatially structured oscillations in a two-dimensional excitatory neuronal network with synaptic depression*, **J Comput. Neurosci.** 28 (2010), pp. 193-209.
39. Z.P. Kilpatrick & P.C. Bressloff, *Effects of synaptic depression and adaptation on spatiotemporal dynamics of an excitatory neuronal network*, **Physica D** 239 (2010), pp. 547-560.
40. P.C. Bressloff & Z.P. Kilpatrick, *Nonlocal Ginzburg-Landau equation for cortical pattern formation*, **Phys. Rev. E** 78 (2008), 041916.
41. Z.P. Kilpatrick, S.E. Folias, & P.C. Bressloff, *Traveling pulses and wave propagation failure in inhomogeneous neural media*, **SIAM J Appl. Dyn. Syst.** 7 (2008), pp. 161-185.

#### EDITORIALS, BOOK CHAPTERS, AND BOOK REVIEWS

- B1. Z.P. Kilpatrick, J Gjorgjieva, & R. Rosenbaum, *Special Issue from the 2017 International Conference on Mathematical Neuroscience*, **J. Math. Neurosci.** 9 (2019) 1.
- B2. Z.P. Kilpatrick, *Book Review: Methods and Models in Mathematical Biology (Johannes Muller and Christina Kuttler)*, **SIAM Rev.** 59 (2017) pp. 211-214.
- B3. Z.P. Kilpatrick, *Wilson-Cowan model*, **Encyclopedia of Computational Neuroscience** (2014), Ed. D. Jaeger and R. Jung, Springer Verlag.
- B4. G.B. Ermentrout, S.E. Folias, & Z.P. Kilpatrick, *Spatiotemporal pattern formation in neural fields with linear adaptation*, **Neural Field Theory** (2014), Ed. S. Coombes, P. beim Graben, R. Potthast and J.J. Wright, Springer Verlag.

#### INVITED TALKS

1. **International Conference on Mathematical Neuroscience: Tutorials**, Copenhagen DK, 6/2019

2. **BIRS Workshop: Neuroethology of Movement and Motor Control**, Banff AB, 5/2019
3. **Colorado State University, Applied Mathematics Seminar**, Fort Collins CO, 2/2019
4. **Princeton Neuroscience Institute**, Princeton NJ, 10/2018
5. **International Neural Coding Workshop**, Torino IT, 9/2018
6. **Organization for Computational Neuroscience: Workshops**, Seattle WA, 7/2018
7. **Institut d'Investigacions Biomèdiques August Pi i Sunyer**, Barcelona ESP, 6/2018
8. **International Conference on Mathematical Neuroscience**, Juan-les-Pins FR, 6/2018
9. **Colorado School of Mines, Math Biology Summer School**, Golden CO, 5/2018
10. **Winter School on Stochastic Models in Neuroscience**, Toulouse FR, 12/2017
11. **Institut de Mathématiques de Toulouse**, Toulouse FR, 12/2017
12. **INRIA, NeuroMathComp Seminar**, Sophia Antipolis FR, 11/2017
13. **Ecole Normale Supérieure, Group for Neural Theory**, Paris FR, 11/2017
14. **University of Pennsylvania, Computational Neuroscience Seminar**, Philadelphia PA, 10/2017
15. **SIAM Central States Sectional Conference: Minisymposium**, Fort Collins CO, 9/2017
16. **Colorado School of Mines, Applied Mathematics Colloquium**, Golden CO, 8/2017
17. **Mathematical Biosciences Institute–REU Capstone Conference**, Columbus OH, 8/2017
18. **SIAM Applications of Dynamical Systems: Minisymposium**, Snowbird UT, 5/2017
19. **Pitt Workshop: Computing with Networks of Neurons**, Pittsburgh PA, 5/2017
20. **AMS Sectional Meeting: Minisymposium**, Pullman WA, 4/2017
21. **BIRS Workshop: Brain Dynamics and Statistics**, Banff AB, 2/2017
22. **University of Colorado School of Medicine, Physiology Seminar**, Aurora CO, 11/2016
23. **Colorado State University, Applied Mathematics Seminar**, Fort Collins CO, 9/2016
24. **SIAM Life Sciences: Minisymposium**, Boston MA, 7/2016
25. **Bernstein Sparks Workshop: Recurrent Network Theory**, Göttingen DE, 5/2016
26. **University of Arkansas, Physics Colloquium**, Fayetteville AR, 3/2016
27. **BIRS Workshop: Connecting Network Architecture and Computation**, Banff AB, 12/2015
28. **AMS Sectional Meeting: Minisymposium**, New Brunswick NJ, 11/2015
29. **LSUHSC School of Medicine, Cell Biology and Anatomy Seminar**, New Orleans LA, 9/2015
30. **SIAM Applications of Dynamical Systems: Minisymposium**, Snowbird UT, 5/2015
31. **University of Texas Conference on Learning and Memory**, Austin TX, 4/2015
32. **IMACS Nonlinear Waves: Minisymposium**, Athens GA, 4/2015
33. **University of Colorado, Applied Mathematics Colloquium**, Boulder CO, 11/2014
34. **Houston Museum of Natural Science**, Sugar Land TX, 10/2014
35. **SIAM Life Sciences: Minisymposium**, Charlotte NC, 8/2014
36. **AIMS Conference on Dynamical Systems: Minisymposium**, Madrid ESP, 7/2014
37. **Nonlinear Dynamics and Stochastic Methods**, Pittsburgh PA, 3/2014
38. **GCC Theoretical and Computational Neuroscience**, Houston TX, 1/2014
39. **University of Minnesota, Mathematical Biology Seminar**, Minneapolis MN, 11/2013

40. **Frontiers in Applied and Computational Mathematics**, Newark NJ, 6/2013
41. **IMA Workshop: Stochastic Modeling of Biological Processes**, Minneapolis MN, 5/2013
42. **IMACS Nonlinear Waves**, Athens GA, 3/2013
43. **SIAM Life Sciences: Minisymposium**, San Diego CA, 8/2012
44. **Canadian Applied and Industrial Mathematical Society Meeting**, Toronto ON, 6/2012
45. **Progress in Neural Field Theory**, Reading UK, 4/2012
46. **University of Houston, Mathematics Colloquium**, Houston TX, 2/2012
47. **Hungarian Academy of Sciences, Neural Computing Seminar**, Budapest HU, 11/2011
48. **Spatio-temporal evolution equations and neural fields**, CIRM, Marseille FR, 10/2011
49. **Rice University, Computational and Applied Mathematics Colloquium**, Houston TX, 1/2011
50. **University of Nottingham, Mathematical Neuroscience Group**, Nottingham UK, 11/2009
51. **INRIA, NeuroMathComp Seminar**, Sophia Antipolis FR, 10/2009
52. **NIH-NIDDK, Laboratory of Biological Modeling Seminar**, Bethesda MD, 9/2009
53. **University of Pittsburgh, Mathematical Biology Seminar**, Pittsburgh, PA, 9/2009

#### CONFERENCE ORGANIZING

- **Neural computations underlying working memory limitations**, (with Albert Compte)  
Workshop at Annual Conference on Computational Neuroscience (proposed), Barcelona ESP, 7/2019
- **Dynamical models of individual and collective decision-making**, (with Krešimir Josić and Bhargav Karamched) Minisymposium at SIAM Life Sciences, Minneapolis MN, 8/2018
- **International Conference on Mathematical Neuroscience**,  
Advisory Committee, Copenhagen DK, 6/2019  
Advisory Committee, Juan-les-Pins FR, 6/2018  
Conference Chair, Boulder CO, 6/2017  
Conference Co-Chair, Juan-les-Pins FR, 6/2016
- **GCC Annual Conference on Theoretical and Computational Neuroscience**, (co-organizer)  
Rice University, Houston TX: 2014, 2015
- **Nonlinear and stochastic dynamics in large neuronal networks**, (with Jonathan Touboul)  
Minisymposium at SIAM Applications of Dynamical Systems, Snowbird UT, 5/2015
- **Neural mechanisms of working memory limits**, (with Albert Compte)  
Workshop at Annual Conference on Computational Neuroscience, Paris FR, 7/2013
- **Stochasticity in large networks of the brain**, (with Jonathan Touboul)  
Minisymposium at SIAM Applications of Dynamical Systems, Snowbird UT, 5/2013
- **Spatiotemporal dynamics in networks of the brain**, (with Stefanos Folias)  
Minisymposium at SIAM Life Sciences, San Diego CA, 8/2012
- **Criticality, threshold phenomena, and network dynamics**, (co-organizer)  
Conference at CBSG Theme Days, University of Pittsburgh, Pittsburgh PA, 5/2012
- **SIAM/MAA Mid-Atlantic Regional Applied Mathematics**, (co-organizer)  
Conference at Shippensburg University, Shippensburg PA, 4/2012
- **Sensorimotor processes reflected in spatiotemporal dynamics of neuronal activity**, (with Jian-Young Wu) Workshop at Computational Systems Neuroscience, Snowbird UT, 2/2012

- **The role of adaptation and depression in neuronal network dynamics** (with Rodica Curtu)  
Minisymposium at SIAM Life Sciences, Pittsburgh PA, 7/2010
- **Cortical network dynamics** (with Steve Coombes)  
Minisymposium at SIAM Life Sciences, Montreal QC, 8/2008
- **IGERT Annual Student Workshop** (co-organizer)  
Workshop at University of Utah, Salt Lake City UT, 5/2008

#### TEACHING EXPERIENCE

(# times taught in parentheses)

- **University of Colorado:** Graduate Partial Differential Equations; Boundary Value Problems/Fourier Series; Applied Probability (3); Introduction to Differential Equations with Linear Algebra
- **University of Houston:** Mathematical Biology (4); Advanced Linear Algebra (2); Honors Engineering Mathematics (2)
- **University of Pittsburgh:** Calculus 1 & 2; **University of Utah:** Calculus for Biologists 1 &

#### GRADUATE STUDENTS SUPERVISED

- Timothy Thorn, **PhD** (CU Boulder), 1st year  
Current Project: *Low-dimensional dynamics of recurrent neural networks trained for working memory*
- Nicholas Barendregt, **PhD** (CU Boulder), 1st year  
Current Project: *Analyzing dynamic decision models using Chapman-Kolmogorov equations*
- Subekshya Bidari, **PhD** (CU Boulder), 2nd year  
Current Project: *Adaptive models of collective decisions for swarms in dynamic environments*
- Kate Nguyen, **PhD (coadvisor)** (UH), exp 2020  
Current Project: *Optimizing evidence-accumulation in correlated sequences of binary decisions*
- Nikhil Krishnan, **M.S.** (CU Boulder), exp May 2019  
Current Project: *Tuning long-range excursions in stochastic models of foraging*
- Adrian Radillo, **PhD (coadvisor)** (UH), August 2018  
Dissertation: *Optimal decision-making models in changing environments*  
Postdoc: University of Pennsylvania, Department of Neuroscience
- Daniel Poll, **PhD** (UH), May 2017  
Dissertation: *Stochastic dynamics in bump attractor models of spatial working memory*;  
Postdoc: Northwestern University, Department of Engineering Sciences and Applied Mathematics

#### POSTDOCTORAL FELLOWS SUPERVISED

- Tahra Eissa (CU Boulder), 2018–
- Alan Veliz-Cuba (UH), 2013–2015; Three Refereed Publications  
Faculty Position: University of Dayton, Department of Mathematics

#### OTHER TRAINEES SUPERVISED

- Nikhil Krishnan, **undergraduate**, 2017–2018
- Elliott Saslow, **undergraduate**, 2017  
(with Zoe Donaldson, MCDB)
- Matthew Hansen, **undergrad**, 2016–2017
- Jacob Parelman, **postbac**, 2017  
(with R. McKell Carter, Psychology)
- Courtney Van Den Elzen, **grad rotation**  
(IQ Bio Program), 2017

- Six undergrads at UH: two women; one Goldwater Scholar; and three publications.
- Two undergrads at U Pittsburgh: one publication.

### DISSERTATION COMMITTEES

- Jaqueline Wentz, Applied Mathematics (CU Boulder), exp 2020
- Harry Dudley, Applied Mathematics (CU Boulder), exp 2020
- Sama Shretha, Applied Mathematics (CU Boulder), exp 2019
- Elijah Christensen, Neuroscience (CU School of Medicine), exp 2021
- Shelly Jones, Neuroscience (CU School of Medicine), exp 2020
- Callie Federer, Computational Biosciences (CU School of Medicine), exp 2020
- Jay Stotsky, Applied Mathematics (CU Boulder), 2018
- John Nardini, Applied Mathematics (CU Boulder), 2018
- Wei-Ting Li, Biology (UH), 2017
- Inomzhon Mirzaev, Applied Mathematics (CU Boulder), 2017
- Changan Liu, Mathematics (UH), 2017
- Jose Manuel Lopez, Mathematics (UH), 2014

### REVIEWING AND EDITING

- **Editor:** *Journal of Mathematical Neuroscience*
- **Grant Reviewer:** *NSF/NIH Collaborative Research in Computational Neuroscience*, *Agence Nationale de la Recherche (France)*, *Wellcome Trust Fellowships (UK)*, and *NSF – MathBioSys*
- **Book Reviewer:** *SIAM* and *Taylor & Francis*
- **Conference Abstract Reviewer:** *Cosyne (2014, 2017, 2018)* and *International Conference on Mathematical Neuroscience (2016, 2017, 2018)*
- **Journal Referee:** *Biological Cybernetics*; *Discrete and Continuous Dynamical Systems Series B*; *European Journal of Applied Mathematics*; *Frontiers in Computational Neuroscience*; *Frontiers in Systems Neuroscience*; *Journal of Computational Neuroscience*; *Journal of Mathematical Biology*; *Journal of Mathematical Neuroscience*; *Journal of Neurophysiology*; *Journal of Neuroscience*; *Nature Communications*; *Neural Computation*; *Neural Networks*; *Neurocomputing*; *Nonlinearity*; *Physica D*; *Physical Review E*; *Physical Review Letters*; *PLoS Computational Biology*; *PLoS One*; *Scientific Reports*; *SIAM Journal of Applied Dynamical Systems*; *SIAM Journal of Applied Mathematics*; and *SIAM Journal on Mathematical Analysis*

### INDUSTRY CONSULTING

**2018** Scientific & Technical Consultant, **FullContact**, Denver CO

### AFFILIATIONS AND MEMBERSHIPS

- **Affiliate Faculty, Institute for Cognitive Science, University of Colorado Boulder**
- **Affiliate Faculty, Center for Neuroscience, University of Colorado Boulder**
- **Member, Society for Industrial and Applied Mathematics**

### COMMITTEES

- **APPM 30th Anniversary Celebration Committee, CU Boulder, 2019**
- **IQ Biology Academic Advising Committee, CU Boulder, BioFrontiers Institute, 2018–**

- **Graduate Studies Committee**, CU Boulder, Department of Applied Mathematics, 2017–
- **College of Engineering/Applied Mathematics Partnership Committee**, CU Boulder, 2017–
- **Colloquium Chair**, CU Boulder, Department of Applied Mathematics, 2017–2018
- **Awards Committee**, CU Boulder, Department of Applied Mathematics, 2016–2017
- **Graduate Studies Committee**, UH, Department of Mathematics, 2014–2015
- **Gulf Coast Consortium for Theoretical and Computational Neuroscience**, UH/Rice University/Texas Medical Center, 2012–2016
- **Colloquium Committee**, UH, Department of Mathematics, 2012–2016
- **NETWORKS Seminar Committee**, UH, 2012–2016

#### OUTREACH

- **National Alliance for Doctoral Studies in the Mathematical Sciences**, mentor, 2014–
- **Association for Women in Math**, U Utah, alumnus mentor, 2016–2017
- **Summer Undergraduate Research Fellowship**, UH, professional development panelist, 2015
- **SIAM/AMS Student Chapter**, UH, professional development panelist, 2013–2016
- **Cougar and Houston Area Mathematics Program (CHAMP)**, UH, facilitating high school mathematics outreach program, 2013–2016