5th Annual FALL FRONTIERS

UNDERGRADUATE RESEARCH POSTER EXHIBITION

October 25, 2017

5:00 - 7:00 p.m.

Wilbur Cross South Reading Room

Sponsored by the

University of Connecticut

Office of Undergraduate Research

Enrichment Programs

About Frontiers in Undergraduate Research

The Fall Frontiers Poster Exhibition is a multidisciplinary research forum showcasing undergraduate research, scholarship, and creative projects at the University of Connecticut. Fall Frontiers complements the longstanding spring Frontiers exhibition, providing an additional opportunity for UConn's student researchers to share their exciting work. This is the fifth fall event sponsored by the Office of Undergraduate Research (OUR). This year's exhibition includes 74 students presenting posters for 73 research and creative projects.

Students' projects span the disciplines and include both independent research and work pursued in collaboration with other undergraduates. The projects presented reflect the invaluable contributions of research mentors, including graduate students, postdoctoral scholars, staff, and faculty members. We hope you enjoy meeting our wonderful students and learning about their innovative projects.

About the Office of Undergraduate Research

The Office of Undergraduate Research is a resource for students interested in enriching their undergraduate experience through participation in research, scholarship, and creative activity. The OUR provides information and advising to assist students in identifying relevant opportunities, as well as several funding programs to support the students and their faculty mentors.

Many of the Fall Frontiers presenters have received financial support for their projects from the OUR, which awarded over $500,000 in 2016-17 in support of students' research and creative endeavors. These awards are funded by the Office of Undergraduate Research with generous support from the Office of the Provost, the Office of the Vice President for Research, the Deans of the schools and colleges, and private donations from alumni, parents, and other friends of UConn and undergraduate research.

5th Annual Fall Frontiers Poster Exhibition

Poster Exhibition

Wednesday, October 25, 2017
5:00 p.m. – 7:00 p.m.

Introduction and Welcome

Caroline McGuire, Director, Office of Undergraduate Research

Keynote Speaker

John Volin, Vice Provost, Academic Affairs, and Professor, Department of Natural Resources and the Environment

Closing Remarks

Jennifer Lease Butts, Assistant Vice Provost, Enrichment Programs, and Director, Honors Program

Student Posters and Presenters

This listing of projects includes the undergraduate student authors and their faculty mentors. Many projects also include the contributions and mentorship of dedicated graduate students and postdoctoral scholars.

1. Prodigal: A Cut-Paper Comic Book
Austin MacDonald, Art - Illustration/Animation
Advisor: Alison Paul, Assistant Professor, Art and Art History
Advisor: Rossitza Donesky, Visiting Associate Professor, Art and Art History

2. Designing Museum Experiences with Omeka Everywhere
Andrew Wolf, Digital Media and Design
Advisor: Clarissa Ceglio, Assistant Professor, Digital Media and Design

3. Respecting Refugees: An Evaluation of Refugee Integration Practices by Connecticut Service Providers
Susan Naseri, Political Science and Human Rights
Advisor: Jennifer Sterling-Folker, Alan R. Bennett Honors Professor and POLS Honors Director, Political Science

4. The Impact of Super PAC Characteristics on Funding Sources
Kyle Adams, Political Science
Advisor: Paul Herrnson, Professor, Political Science

5. Supplementary Constitutional Curriculum
Camille Chill, Political Science and Journalism
Advisor: Kristin Kelly, Associate Professor, Political Science

6. Can't Fight that Feeling: Emotions, Political Participation, and Black Presidential Candidates
Sydney Carr, Political Science
Advisor: Evelyn Simien, Professor, Political Science

7. Town Conservation Commissions: Local Environmental Action in the Age of Climate Change
Abigail LaFontan, Political Science
Advisor: Prakash Kashwan, Assistant Professor, Political Science

8. Memory After Concussion: Computer-Based Memory Rehabilitation
Joseph Fetta, Nursing
Advisor: Angela Starkweather, Professor, Nursing

9. The Effects of the Maternal Voice on Preterm Infants in the Neonatal Intensive Care Unit: An Integrative Literature Review
Selena Williamson, Nursing
Advisor: Jacqueline McGrath, Associate Dean and Professor, Nursing

10. Spanish to English Poetry Translation
Heather Xu, Biological Sciences
Advisor: Peter Constantine, Instructor in Residence, Literatures, Cultures, and Languages

11. Fear Within Virtual Reality Environments
Allison Arnista, Psychological Sciences
Advisor: Robert Astur, Associate Professor, Psychological Sciences

12. The Function of Worrying in Friendships
Alexandria Nuccio, Psychological Sciences
Advisor: Kimberli Treadwell, Associate Professor, Psychological Sciences

13. Exploring the Relationships between Job Stress, Commuting Stress and Work-Family Conflict on Facets of Burnout
Dilsara Liyanage, Psychological Sciences
Advisor: Janet Barnes-Farrell, Professor, Psychological Sciences

14. EEG Mu Rhythm and Language in 6- and 12-month-old Infants
Sadie Moncayo, Allied Health Sciences
Dilsara Liyanage, Psychological Sciences
Advisor: Kimberly Cuevas, Assistant Professor, Psychological Sciences

15. Assessing Public Perception of K-12 Public Schools Using Anchoring Vignettes
Kathrine Grant, Secondary English Education and English
Advisor: Shaun Dougherty, Assistant Professor, Educational Leadership

16. The Effect of Idiomatic Language in the Processing of Events
Katrina Turick, Cognitive Science and Psychological Sciences
Advisor: Gerry Altmann, Professor, Psychological Sciences

17. Analyzing the Contributing Factors to the Progression of Chronic Kidney Disease of Unknown Etiology in Sri Lankan Agricultural Communities
Deborah Foster, Allied Health Sciences
Advisor: Stephen Schensul, Professor, Community Medicine and Health Care, UConn Health

18. The Shift: Analyzing CIRM's Funding Initiatives, Plans, and Progress in Translating Stem Cell Research into Clinical Therapies Since 2006
Akshayaa Chittibabu, Physiology and Neurobiology and Sociology
Advisor: Audrey Chapman, Professor, Community Medicine and Health Care, UConn Health

19. Patient Views on an Implantable Continuous Glucose Monitor for Type 2 Diabetes: A Qualitative Analysis
Christiana Field, Psychological Sciences and Spanish
Advisor: Amy Gorin, Professor, Psychological Sciences

20. The Effect of Observational Learning on Female Pair Housed Rats in Water and Dry T-Maze
Danni Dong, Psychological Sciences
Advisor: Etan Markus, Professor, Psychological Sciences

21. The Impact of Language Impairment on the Perception of Guilt
Audra Blewitt, Speech, Language, and Hearing Sciences and Psychological Sciences
Advisor: Tammie Spaulding, Associate Professor, Speech, Language, and Hearing Sciences

22. Novelty and Familiarity Preference in Toddlers
Kayla Fobian, Psychological Sciences and Human Development and Family Studies
Advisor: Deborah Fein, Distinguished Professor, Psychological Sciences

23. Embryonic Skeletal Development of Notch 3 Knock In Transgenic Mice
Saadiya Dalal, Biological Sciences
Advisor: Ernesto Canalis, Professor, Orthopedic Surgery and Medicine, UConn Health

24. Sickle Cell Disease in Relation to Bone Health
Kavita Rana, Molecular and Cell Biology
Advisor: Liping Xiao, Assistant Professor, Medicine and Psychiatry, UConn Health
Advisor: Marja Hurley, Professor, Medicine and Orthopedic Surgery, UConn Health

25. Loss of Dot1L Function in Cartilage Impairs Skeletal Growth
Syifa Djunaedi, Physiology and Neurobiology and Sociology
Advisor: Rosa Guzzo, Assistant Professor, Neuroscience, UConn Health

26. Effects of an Enlarged Inferior Colliculus on Hearing
Nazli Morel, Molecular and Cell Biology
Advisor: Douglas Oliver, Professor, Neuroscience, UConn Health

27. The Localization of RFWD2 in the Brain and in Neurons
Rik Emery, Physiology and Neurobiology
Advisor: Xin-Ming Ma, Associate Professor, Neuroscience, UConn Health

28. Validating Quantification of NifH Genes using Digital Droplet PCR
Philip Gialopsos, Biological Sciences
Advisor: Jonathan Klassen, Assistant Professor, Molecular and Cell Biology

29. Symbiotic Benefits of the Hawaiian Bobtail Squid Accessory Nidamental Gland Bacterial Consortium in Egg Protection against Algae
Jessica Bertenshaw, Physiology and Neurobiology
Advisor: Spencer Nyholm, Associate Professor, Molecular and Cell Biology

30. Evaluation of Apoptosis in Embryonic Lethal Craniofacial-Specific CDC73 Knockout Mice
Lilia Shen, Biological Sciences
Advisor: Jessica Costa-Guda, Assistant Research Professor, Center for Molecular Medicine, UConn Health
Advisor: Andrew Arnold, Professor, Medicine and Genetics and Genome Sciences, UConn Health

31. Investigation of Parafibromin's Contribution to Mesenchymal Stem Cell Fate
Chisom Arinze, Molecular and Cell Biology
Advisor: Jessica Costa-Guda, Assistant Research Professor, Center for Molecular Medicine, UConn Health

32. Immune Checkpoint Inhibitor Lag3 Deficiency in Mouse Macrophages is Associated with Altered Cell Metabolism
Renee Taylor, Biological Sciences
Advisor: Annabelle Rodriguez-Oquendo, Professor, Cell Biology, Center for Vascular Biology, UConn Health

33. CD13 Promotes Tunneling Nanotube Formation and Cell-Cell Communication in Human Endothelial Cells and Mouse Primary Macrophages
Brian Aguilera, Molecular and Cell Biology
Advisor: Mallika Ghosh, Assistant Professor, Cell Biology, Center for Vascular Biology, UConn Health

34. Determination of the Clonal Relationships in Fibrodysplasia Ossificans Progressiva Lesions
Michael Schneider, Physiology and Neurobiology
Advisor: David Goldhamer, Professor, Molecular and Cell Biology

35. Structure and Function of the Phage L Decorator Protein
Helen Belato, Molecular and Cell Biology
Advisor: Andrei Alexandrescu, Professor, Molecular and Cell Biology

36. Interactions of Disease-Associated WHAMM Variants with Actin, Microtubules, and Membranes
Alyssa Mathiowetz, Molecular and Cell Biology
Advisor: Kenneth Campellone, Assistant Professor, Molecular and Cell Biology

37. Utilizing High-Content Human Protein Microarrays to Identify Potential Biomarkers of Heart Failure
Matthew Lin, Biological Sciences
Advisor: Li Wang, Professor, Physiology and Neurobiology

38. Mapping the Stem Cell Niche of the Lateral Ventricles in the Developing Brain
Deepinder Singh, Molecular and Cell Biology
Benjamin Babbitt, Physiology and Neurobiology
Saurabh Kumar, Molecular and Cell Biology
Advisor: Joanne Conover, Associate Professor, Physiology and Neurobiology

39. Characterization of Tumor-Infiltrating Lymphocytes in Mice Immunized with Neo-Epitope Vaccines
Kavita Sinha, Molecular and Cell Biology and Psychological Sciences
Advisor: Pramod Srivastava, Professor, Immunology, Director, Neag Comprehensive Cancer Center, UConn Health

40. Antigen Persistence in Dendritic Cells
Ayush Mittal, Molecular and Cell Biology
Advisor: Charles Giardina, Professor, Molecular and Cell Biology
Advisor: Carl Schlichting, Professor, Ecology and Evolutionary Biology
Advisor: Pramod Srivastava, Professor, Immunology, Director, Neag Comprehensive Cancer Center, UConn Health

41. Analysis of a Clathrin Binding Small Molecule
Raven Vella, Structural Biology and Biophysics and Spanish
Advisor: Charles Giardina, Professor, Molecular and Cell Biology

42. Identifying Targets of miR-29 in the Osteoclast Lineage
Jovaun Mason, Molecular and Cell Biology
Advisor: Anne Delany, Associate Professor, Medicine, UConn Health

43. Investigation of Bacteria from the *Trachymyrmex septentrionalis* Fungus Garden as Potential Antibacterial Drug Leads
Brendan Stewart, Molecular and Cell Biology
Advisor: Marcy Balunas, Associate Professor, Pharmaceutical Sciences
Advisor: Jonathan Klassen, Assistant Professor, Molecular and Cell Biology

44. Gut Microbiome Influence on Chronic Infection Response
Alexa Friedman, Individualized Major: Human Health Sciences and Development
Advisor: Nichole Broderick, Assistant Professor, Molecular and Cell Biology

45. Effect of apoC-III on VLDL Secretion in the Liver
Angelika Muter, Allied Health Sciences
Advisor: Alison B. Kohan, Assistant Professor, Nutritional Sciences

46. Synthesis and Quantum Yield of Triplet Excited States of BODIPY-based Donor-Acceptor Molecules
Andrew Boudreau, Chemistry
Advisor: Tomoyasu Mani, Assistant Professor, Chemistry

47. Paper Conjugated Enzymes: A Universal, Ecofriendly Method of Enzyme Stabilization on Ordinary Paper
Abhishek Gupta, Physiology and Neurobiology
Advisor: Challa Kumar, Professor, Chemistry

48. Wireless Glucose Transmitter
Patrick Norris, Chemistry and Political Science
Advisor: Fotios Papadimitrakopoulos, Professor, Chemistry

49. Access to Amides via Oxidative Amidation using an Oxoammonium Salt
Vincent Pistritto, Chemistry and Music
Advisor: Nicholas Leadbeater, Associate Professor, Chemistry

50. Peptide Crosslinked Nucleic Acid Nanoparticles: An Enzyme Specific Drug Delivery System
Nicole Gomez, Chemistry
Advisor: Jessica Rouge, Assistant Professor, Chemistry

51. Enzymatic Ligation of RNA Aptamers to Nanoparticle Surface for Therapeutic Treatments
Emily Saccuzzo, Chemistry
Advisor: Jessica Rouge, Assistant Professor, Chemistry

52. Isolation & Characterization of Thioredoxin-1 Engineered Exosomes to Improve Post-Ischemic Limb Recovery
Rahul Sindvani, Physiology and Neurobiology and Finance
Shubham Kanake, Allied Health Sciences
Advisor: Nilanjana Maulik, Professor, Surgery, UConn Health

53. The Effect of Load on Cartilage Regeneration in Bovine Knee Articular Cartilage
Kelsey Richard, Individualized Major: Global Health
Advisor: Caroline Dealy, Associate Professor, Department of Reconstructive Sciences, Department of Orthopaedic Surgery, Center for Regenerative Medicine and Skeletal Development, UConn Health

54. mHealth Smartphone Application to Measure Risky Driving Behavior and Predict Crashes
Amisha Dave, Biomedical Engineering
Advisor: Thomas Pohida, SPIS, CIT, National Institutes of Health
Advisor: Raisa Freidlin, National Institutes of Health

55. An Optical System for Analysis of Implantable Medical Devices
Ariane Garrett, Biomedical Engineering and Spanish
Advisor: Kazunori Hoshino, Assistant Professor, Biomedical Engineering

56. Effect of Silk-Based Hydrogel Topography on Intestinal Epithelial Cell Morphology and Wound Healing *In Vitro*
Marisa Boch, Chemical Engineering and Molecular and Cell Biology
Advisor: Kelly Burke, Assistant Professor, Chemical and Biomolecular Engineering

57. Assessing Herbicide and Fertilizer Drift between Conventional and Organic Farmland
Colby Buehler, Chemical Engineering
Advisor: Kristina Wagstrom, Assistant Professor, Chemical and Biomolecular Engineering

58. Synthesis and Characterization of Monolayer and Bilayer WSe_2 as a Quantum Emitter
Giovanni Ninivaggi, Mathematics
Nico Wright, Mechanical Engineering and German
Advisor: Michael Pettes, Assistant Professor, Mechanical Engineering

59. Low-Cost, High-Throughput Paper-Based Microfluidics
Eric Lepowsky, Mechanical Engineering
Advisor: Savas Tasoglu, Assistant Professor, Mechanical Engineering

60. Differential Expression of Marker Genes in Human Intestinal Organoid Cells
Shahan Kamal, Molecular and Cell Biology
Advisor: Ion Moraru, Professor, Cell Biology, Center for Cell Analysis and Modeling, UConn Health
Advisor: Chris Heinen, Associate Professor, Department of Medicine, Investigator, Center for Molecular Oncology, UConn Health

61. Modeling and Analyzing an Optogenetic System for Photoactivatable Protein Dissociation
Anvin Thomas, Molecular and Cell Biology
Advisor: James Schaff, Associate Professor, Cell Biology, Center for Cell Analysis and Modeling, UConn Health

62. Sloppy Cell Integration with Virtual Cell
Keeyan Ghoreshi, Biomedical Engineering
Advisor: Mikhail Blinov, Assistant Professor, Genetics and Genome Sciences, UConn Health

63. Modeling Biological Systems through Virtual Cell
Natalie de la Garrigue, Biological Sciences
Advisor: Leslie Loew, Professor, Cell Biology and Computer Science and Engineering, UConn Health

64. Engaging Users to Participate in Smart-Health Research
Elaine Tsun, Computer Science and Engineering
Advisor: Bing Wang, Professor, Computer Science and Engineering

65. Computational Transcriptomics to Decode a Christmas Tree's Resistance to Phytophthora Dieback (Root Rot)
Alexander Trouern-Trend, Molecular and Cell Biology
Advisor: Jill Wegrzyn, Assistant Professor, Ecology and Evolutionary Biology

66. Collecting Data for Association Genetics: Tripal Plant PopGen Submit Pipeline
Peter Richter, Computer Science and Engineering
Advisor: Jill Wegrzyn, Assistant Professor, Ecology and Evolutionary Biology

67. Genotyping Array Design for *Pinus taeda*
Madison Caballero, Molecular and Cell Biology
Advisor: Jill Wegrzyn, Assistant Professor, Ecology and Evolutionary Biology

68. Hiding in Plain Sight: Do Brown Trout Engage in Background Matching in Simple Environments?
Mackenzie Watkins, Ecology and Evolutionary Biology
Advisor: Margaret Rubega, Associate Professor, Ecology and Evolutionary Biology

69. Assessing the Quality of Beef from Humanely-Raised and Traditional Marketing Claims
Catherine Cabano, Animal Science
Advisor: Richard Mancini, Associate Professor, Animal Science

70. Effects of Maternal Milk Production on Bull Calf Growth and Blood Biochemistry
Randi Szabo, Animal Science
Alexandra Cabra, Animal Science
Veronica Pleasant, Animal Science and Pathobiology
Advisor: Kristen Govoni, Animal Science
Advisor: Maria Hoffman, Visiting Assistant Professor, Fisheries, Animal and Veterinary Sciences, University of Rhode Island

71. The Effects of Maternal Programming on Interferon Gamma and IgG Concentrations in Holstein Calves
Veronica Pleasant, Animal Science and Pathobiology
Alexandra Cabra, Animal Science
Randi Szabo, Animal Science
Advisor: Kristen Govoni, Associate Professor, Animal Science
Advisor: Maria Hoffman, Visiting Assistant Professor, Fisheries, Animal and Veterinary Sciences, University of Rhode Island

72. Investigating the Effects of High Maternal Milk Production during Gestation on Circulating Concentrations of Insulin and Glucose in Holstein Bull Calves
Alexandra Cabra, Animal Science
Veronica Pleasant, Animal Science and Pathobiology
Randi Szabo, Animal Science
Advisor: Kristen Govoni, Associate Professor, Animal Science
Advisor: Maria Hoffman, Visiting Assistant Professor, Fisheries, Animal and Veterinary Sciences, University of Rhode Island

73. Effects of Poor Maternal Nutrition During Gestation on Offspring Oxidative Stress
Helenrose Iannitti, Animal Science
Advisor: Sarah Reed, Assistant Professor, Animal Science

Alphabetical Listing of Presenters with Poster Numbers

Adams, Kyle – 4
Aguilera, Brian – 33
Arinze, Chisom – 31
Arnista, Allison – 11
Belato, Helen – 35
Bertenshaw, Jessica – 29
Blewitt, Audra – 21
Boch, Marisa – 56
Boudreau, Andrew – 46
Buehler, Colby – 57
Caballero, Madison – 67
Cabano, Catherine – 69
Cabra, Alexandra – 72, 70, 71
Carr, Sydney – 6
Chill, Camille – 5
Chittibabu, Akshayaa – 18
Dalal, Saadiya – 23
Dave, Amisha – 54
de la Garrigue, Natalie – 63
Djunaedi, Syifa – 25
Dong, Danni – 20
Emery, Rik – 27
Fetta, Joseph – 8
Field, Christiana – 19
Fobian, Kayla – 22
Foster, Deborah – 17
Friedman, Alexa – 44
Garrett, Ariane – 55
Ghoreshi, Keeyan – 62
Gialopsos, Philip – 28
Gomez, Nicole – 50
Grant, Kathrine – 15
Gupta, Abhishek – 47
Iannitti, Helenrose – 73
Kamal, Shahan – 60
Kanake, Shubham - 53
LaFontan, Abigail – 7
Lepowsky, Eric – 59
Lin, Matthew – 37
Liyanage, Dilsara – 13
MacDonald, Austin – 1
Mason, Jovaun – 42
Mathiowetz, Alyssa – 36
Mittal, Ayush – 40
Moncayo, Sadie – 14
Morel, Nazli – 26
Muter, Angelika – 45
Naseri, Susan – 3
Ninivaggi, Giovanni – 58
Norris, Patrick – 48
Nuccio, Alexandria – 12
Pistritto, Vincent – 49
Pleasant, Veronica – 71, 70, 72
Rana, Kavita – 24
Richard, Kelsey – 53
Richter, Peter – 66
Saccuzzo, Emily – 51
Schneider, Michael – 34
Shen, Lilia – 30
Sindvani, Rahul – 52
Singh, Deepinder – 38
Sinha, Kavita – 39
Stewart, Brendan – 43
Szabo, Randi – 70, 71, 72
Taylor, Renee – 32
Thomas, Anvin – 61
Trouern-Trend, Alexander – 65
Tsun, Elaine – 64
Turick, Katrina – 16
Vella, Raven – 41
Watkins, Mackenzie – 68
Williamson, Selena – 9
Wolf, Andrew – 2
Xu, Heather – 10

Special Thanks

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Jennifer Lease Butts, *Assistant Vice Provost for Enrichment Programs and Director of the Honors Program*

Student Volunteers for the Fall Frontiers Poster Exhibition

Office of Undergraduate Research

Caroline McGuire, *Director, Office of Undergraduate Research*

Melissa Berkey, *UConn IDEA Grant Program Coordinator, Office of Undergraduate Research*

Jodi Eskin, *Program Coordinator, Office of Undergraduate Research*

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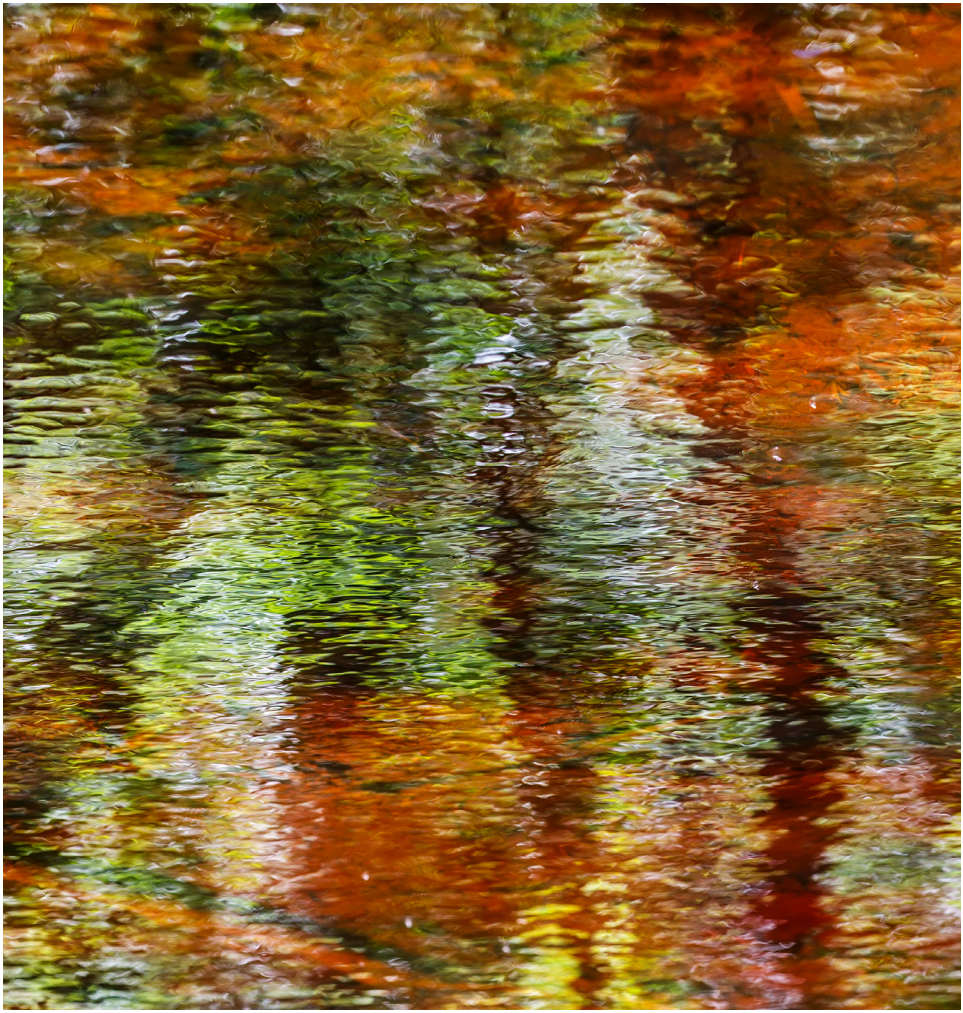

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