Curiosity, Creativity and Complexity Conference

May 23-25, 2023

Jerome L. Greene Science Center, 9th Floor
3227 Broadway, NY, NY

Agenda: Day 1

Agenda: Day 2

Agenda: Day 3

Poster Sessions

COLUMBIA | Zuckerman Institute
MORTIMER B. ZUCKERMAN MIND BRAIN BEHAVIOR INSTITUTE

COLUMBIA UNIVERSITY
Center for Science and Society

COLUMBIA | ISERP
Institute for Social and Economic Research and Policy

Agenda: Day 1

8:15-8:40am

Check in and Refreshments

8:45-9:00am

Welcome/Opening Remarks from Jacqueline Gottlieb, Columbia University

9:05-9:30am

Tali Sharot, University College London

Motives for information seeking: Theory and applications

9:35-10:00am

Ming Hsu, University of California-Berkeley

Knowing what you don't know: Information seeking in open-ended decisions

10:05-10:30am

Daniel Schacter, Harvard University

On the relations among creativity, memory and episodic simulation

10:35-11:05am

Break and Poster Viewing

11:10-11:35am

Bruno Averbeck, National Institute of Mental Health

Neural and computational mechanisms underlying exploratory behavior

11:40am-12:05pm

Benjamin Hayden, University of Minnesota

Neural signatures of categorically distinct information-seeking states in virtual foraging

12:10-12:35pm

Ilya Monosov, Washington University, St Louis

Neurobiology of curiosity

12:40-2:30pm

Lunch and Poster Viewing

2:35-3:00pm

Joy Geng, University of California-Davis

Good-enough is sometimes best: The role of attentional guidance in visual search

3:05-3:30pm

Floris de Lange, Donders Institute

How does surprise influence information sampling and curiosity?

3:35-4:00pm

Russell Golman, Carnegie Mellon University

The information-gap theory of curiosity

4:00-6:00pm

Reception and Poster Viewing

Agenda: Day 2

8:00-8:55am

Speaker and Travel Awardees Breakfast

8:15-8:55am

Check in and Refreshments

8:55-9:05am

Announcements

9:10-9:35am

Jessica Andrews-Hanna, University of Arizona

Minds at rest: What resting state cognition can tell us about creativity, curiosity and rumination

9:40-10:05am

Kinneret Teodorescu, Technion, Israel

The foraging mind: A link between spatial search, creativity and dishonesty

10:10-10:35am

Kalina Christoff, University of British Columbia

Spontaneous thought as an act of self-exploration: A view from the dynamic framework of thought

10:40-11:05am

Break and Poster Viewing

11:10-11:35am

Pietro Ortoleva, Princeton University

When to decide: Choice in parallel search

11:40am-12:05pm

Yusufcan Masatioglu, University of Maryland

Intrinsic information preferences and skewnes

12:10-12:35pm

Michaela Pagel, Columbia University

Beliefs that entertain

12:40-2:30pm

Lunch and Poster Viewing

2:35-3:00pm

Catherine Hartley, New York University

Causes and consequences of exploration across development

3:05-3:30pm

Jochen Triesch, Frankfurt Institute for Advanced Studies

Exploring and learning to represent objects

3:35-4:00pm

Ian Osband, Google Deep Mind, London

Epistemic neural networks

4:00-6:00pm

Reception and Poster Viewing

Agenda: Day 3

8:15-8:55am

Check in and Refreshments

9:00-9:25am

Mattias Gruber, Cardiff University

Individual differences in how curiosity and prediction errors affect learning and information seeking

9:30-9:55am

Ifat Levy, Yale University

Individual differences in decision-making under uncertainty

10:00-10:25am

Angela Yu, University of California-San Diego

Individual differences in intrinsic motivations

10:30-10:55am

Break

11:00-11:25am

Todd Gureckis, New York University

Studying the structure of playful goals

11:30-11:55am

Daniel Polani, University of Hertfordshire

Empowerment: The information that would be free

11:55-12:10pm

Break

12:15-1:45pm

Moderated Discussion

Poster Session

Day 1

VIEW FULL ABSTRACTS

1 - *Endogenous information acquisition, college choice, and undermatching*
Matlin*; E., Harvard University

2 - *Closing gaps in scientific knowledge: a topological approach to understanding creativity and discovery in science*
Kedrick*, K., Gebhart, T., Funk, R.J., University of Minnesota

3 - *Exploration of the unknown*
Dan*, O., Levy, I., Yale University

4 - *Superstitious learning of abstract order from random reinforcement*
Jin*, Y., Jensen, G., Gottlieb, J., Ferrera, V., Columbia University

5 - *Whether and why we prefer artworks purportedly created by humans vs. Artificial-intelligence models*
Bellaiche*, L., Shahi, R., Turpin, M., Ragnhildstveit, A., Sprockett, S., Barr, N., Christensen, A., Seli, P., Duke University

6 - *Through the lens of music: imagining movies scenes through soundtrack listening*
Groves*, K.R., Ripollés, P., Zuanazzi, A., New York University

7 - *Diminishing creative returns: predicting optimal creative performance*
Hubert*, K. F., Zabelina, D. L., University Of Arkansas

8 - *Balancing creativity and reuse in human question asking*
Liquin*, E. G., Tsai, B., Rhodes, M., Gureckis, T.M., New York University

9 - *Object exploration with vision and touch – effects of object complexity on preschoolers' curiosity and preference*
Bounia-Mastrogianni*, P., Ghilardi, T., Poli, F., Hunnius, S., Mareschal, D., Birkbeck, University of London

10 - *Discovering new functions in everyday tools by children, adults and llm's*
Yiu*, E., Gopnik, A., University of California-Berkeley

11 - *Engagement as maximizing learnability: balancing difficulty and prior knowledge*
Brändle*, F., Wu, C.M., Schulz, E., Max Planck Institute for Biological Cybernetics

12 - *Curious, creative, and complex: an account of play as goal invention*
Chu*, J., Cheyette*, S.J., Diggs-Galligan, S., Tenenbaum, J.B., Schulz, L.E., Massachusetts Institute of Technology

13 - *Rational information gathering account of infant exploratory behavior*
Karni*, G., Mattar, M.G., Emberson, L., Daw, N.D., Princeton University

14 - *Developmental curiosity and social interaction in virtual agents*
Doyle*, C., Shader, S., Lau, M., Sano, M., Yamins, D.L.K, Haber, N., Stanford University

15 - *Asking questions based on uncertainty and the probability of a test*
Goud*, A., Cohanpour, M., Yu, A., Gottlieb, J., Columbia University

16 - *Impatience for information: curiosity is here today, gone tomorrow*
Molnar*, A., Golman, R., University Of Chicago-Booth School of Business

17 - *On the difficulty of evaluating curious artificial agents that pursue their own goals*
Colas*, C., Teodorescu, L., Yuan, E., Côté, M., Oudeyer, P., French Institute for Research in Computer Science and Automation

18 - *Predictive models are not enough for explanation-seeking curiosity: a case study*
Sung*, H., Ostrow, M., Massachusetts Institute of Technology

Poster Session

Day 1 continued

VIEW FULL ABSTRACTS

19 - *Escaping technological "learning traps" through curiosity*
Davies, B., Sankar*, A., Stanford University

20 - *How to find complex exploration behaviors*
Xiong*, H., Ji-An, L., Mattar, M., Wilson, R., University of Arizona

21 - *Complexity and rigidity in human planning*
Ho*, M., Cohen, J., Griffiths, T., Princeton University

22 - *Planning by active sensing*
Lakshminarasimhan*, K., Zhu, S., Angelaki, D., New York University

23 - *I see! How narrative meaning influences gaze behavior*
Berlot*, E., Schmitt, L.M., Huber-Huber, C., Peelen, M.V., De Lange, F.P., Donders Institute-Amsterdam, Radboud University

24 - *The interaction between menu complexity and attentional sampling strategies in multi-attribute decision making*
Elsey*, J., Niebur, E., Stuphorn, V., Johns Hopkins University

25 - *Introspective inference counteracts perceptual distortion*
Mihali*, A., Broeker, M., Ragalmuto, F., Horga*, G., Columbia University

26 - *Curiouser and Curiouser: Children's Intrinsic Exploration of Mazes and Its Effects on Reaching a Goal in DeepMind Lab*
Kosoy*, E., Pathak, D., Agrawal, P., Efros, A., Gopnik, A., University of California-Berkeley

27 - *Neural underpinnings of the evaluation of control to determine when mental effort is worth investing*
Froemer*, R., Kim, J., Prater Fahey, M., Shenhav, A., University of Birmingham

28 - *Distinct roles of reward and information gains in prioritizing decision-relevant stimuli*
Li*, Y., Gottlieb, J., Columbia University

29 - *Information-seeking vs reward maximization: how widespread is curiosity across vertebrate species?*
Ajuwon*, V., Monteiro, T., Ojeda, A., Murphy, R., Walton, M., Kacelnik, A., University of Oxford

30 - *Sensory uncertainty modulates reward-based enhancements in complex predictive actions*
Akande*, A., Kreyenmeier, P., Spering, M., University of British Columbia

31 - *Representations of information value in mouse orbitofrontal cortex during information seeking*
Bussell* J., Bromberg-Martin, E., Abbott, L., Axel, R., Columbia University

32- *Dorsal raphe neurons signal expected reward amount and reward delay during multi-attribute decision-making*
Feng*, Y., Bromberg-Martin, E., Monosov, I., Washington University

33 - *Theta oscillations coordinate curiosity-driven memory enhancements*
Eschmann*, K.C.J., Singh, K.D., Gruber, M., Cardiff University

34 - *A region of posterior parietal cortex prospects the future certainty provided by instrumental information*
Singletary*, N.M., Horga, G., Gottlieb, J., Columbia University

35 - *Value signals in the orbitofrontal cortex incorporate reference-dependent news utility*
Eum*, B., Enkavi, Z., O'Doherty, J., Rangel, A., California Institute of Technology

36 - *Modulation of decision policy by environmental uncertainty & striatal stimulation*
Badyna*, J., Yttri, E., Carnegie Mellon

Poster Session

Day 2

VIEW FULL ABSTRACTS

1 - *Creative insight and generalization in reinforcement learning*
Jaskir*, A., Frank, M.J., Brown University

2 - *The language of creativity: what large language models have to say about creative writing*
Orwig*, W., Edenbaum, E., Greene, J., Schacter, D.L., Harvard

3 - *Investigating the intersection between mind wandering and cognitive flexibility in anxiety.*
Kaiko*, I., Todd, J., Hunt, C., Irish., M., University of Sydney

4 - *Individual differences in creativity may be linked to decision making behaviors*
Yoder*, H., Trattner, J., Jiang, A., Sands, L.P., Kishida, K.T., Wake Forest University

5 - *How are lingering thoughts modulated by current concerns?*
Palacios*, G.K., Bellana, B., Honey, C., University of California-Davis

6 - *The effect of agency on memory and learning in preschool children: exploring the role of curiosity*
Tani*, N., Olson, I., Newcombe, N., Temple University

7 - *Regularised neural networks mimic human insight*
Löwe*, A.T., Touzo, L., Muhle-Karbe, P.S., Saxe, A.M., Summerfield, C., Schuck, N.W., Max Planck Human Development

8 - *Curiously different: interest-curiosity and deprivation-curiosity have distinct benefits and drawbacks*
Whitecross*, W.M., Smithson, M., Australian National University

9 - *When and why the minds of others pique our curiosity*
Wylie*, J., Manalili, M., Gantman, A., Young, L., Boston College

10 - *Dynamics of curiosity and complexity in wikipedia readers*
Zhou*, D., Patankar, S., Gerlach, M., Zurn, P., Lydon-Staley, D., Bassett, D.S., University of Pennsylvannia

11 - *Isolating the distinct motivational factors that shape real-world news seeking*
O'Donoghue*, E.M., Eschmann, K.C.J., Tsujimura, H., Crawford, B., Caswell, D., Oosterwijk, S., Gruber, M. J., Cardiff University

12 - *Mice in Manhattan: rapid learning and flexible routing in a massively reconfigurable maze, with or without cortex*
Zheng*, J., Guimarães, R., Perona, P., Meister, M., California Institute of Technology

13 - *Curious replay for model-based adaptation*
IKauvar*, I., Doyle, C., Zhou, L., Haber, N., Stanford University

14 - *Tackling complexity: using computational complexity theory to model human cognition*
Franco*, P., Yadav,N., Murawski, University of Melbourne

15 - *Computational complexity drives extended deliberation*
Hong*, T., Stauffer W., Carnegie Mellon University, University Of Pittsburgh

16 - *The role of model uncertainty in the arbitration between model-based vs model-free reinforcement learning*
Liu *, J., Wang, S., University of Maryland-College Park

17 - *Inefficient prioritization of task-relevant attributes during instrumental information demand*
Rischall, I., Hunter, L., Jensen, G., Gottlieb, J., Columbia University

18 - *Human hacks and bugs in the recruitment of reward systems for goal achievement*
Molinaro*, G., Collins, A.G.E., University of California-Berkeley

Poster Session

Day 2 continued

VIEW FULL ABSTRACTS

19 - *Multiple roles for simplicity in evaluating explanations*
Vrantsidis*, T.H., Lombrozo, T., Princeton University

20 - *Pleasure from understanding*
Vessel, E.A., Max Planck Institute for Empirical Aesthetics

21 - *Deploying attention for information gains during probabilistic decisions*
Domínguez-Zamora*, J.F., Horga, G., Gottlieb, J., Columbia University

22 - *The use of optic flow during locomotion*
Powell*, N., Panfili, D., Oh, Y., Hayhoe, M., Unviversity of Texas-Austin

23 - *Spike synchrony during information gathering in multi-attribute decision-making*
Locke*, S., Yang, Y., Sampson, S., Emeric, E., Usher, M., Levy, D., Stuphorn, V., Niebur, E., Johns Hopkins University

24 - *Optimizing music-based interventions for stroke rehabilitation*
Palumbo, A*, Groves, K., Vidal, E.L.M., Ripollés, P., New York University

25 - *Gains and losses modulate novelty-seeking during explore-exploit decisions*
Rothenhoefer*, K.M., Stocker, M., Costa, V.D., Oregon National Primate Center

26 - *Closed-loop microstimulation of primate prefrontal cortex causally modulates dynamic social attention*
Fan*, S., Dal Monte, O., Nair, A.R., Fagan, N.A., Chang, S.W., Yale University

27 - *The causal role of lateral frontopolar cortex in choices between complex environments*
Law*, C., Chau, B.K.H, Hong Kong University

28 - *Creativity camp participation effects on amygdala-frontal resting-state functional connectivity in adolescents*
Padilla*, L.E., Roediger, D.J., Mueller, B.A., Dimaggio-Potter, M.E., Fiecas, M.B., Cullen, K.R., University of Minnesota

29 - Effects of Psilocybin on inter-subject brain synchronization during music listening
Winston*, B., Chen, J., Barrett, F., Johns Hopkins University

30 - *Verbal movie recall reveals heightened self-reference and contextual variability in heroin-addicted individuals*
King*, S., Kronberg, G., Mcclain, N., Ceceli, A., Gray, J., Alia-Klein, N., Goldstein, R.Z., Icahn School of Medicine at Mount Sinai

31 - *Cognitive control is inversely related to statistical learning in 5-year-old children*
Foster*, R., Sweeney, L., Kim, J., Gomez, R., Munakata, Y., Johns Hopkins University

32- *Caregiver presence influences the explore-exploit tradeoff*
Dahmani*, A., Amir, D., Thomas, A., Gopnik, A., University of California-Berkeley

33 - *Bayesian modeling of age-related differences in instruction and learning based decision making*
Korem*, N., Duek, O., Jia, R., Grubb, M., Levy, I., Yale University

34 - *Artificial attention model (AAM): a premise for bimodal language learning in infant and robot*
Boucenna*, S., Bergoin, R., Cohen, D., Pitti, A., Cy Paris Cergy Universite

35 - *Goal attribution in human infants and machines*
Yasuda, S., Li, W., Martinez, D., Lake, B., Dillon, M., New York University

36 - *Generating human-like goals by synthesizing reward programs*
Davidson , G., Gureckis , T.M., Lake, B.M., New York University