virtual

OPAM 28

November 18-19, 2020
https://osf.io/meetings/opam28/

2020 organizers:

Deborah Cronin | Patrick Cox | Blaire Dube | Andrew Clement

NOTES ABOUT OPAM28

All times listed are in CENTRAL STANDARD TIME.

All presenters have created presenter pages on the OPAM OSF meeting page.

Posters:

Posters and related material can be viewed at any time on OSF, and poster presenters have scheduled Zoom meetings during their assigned poster session to interact with attendees. Please plan to attend these Zoom meetings if you have questions or comments for the presenters (or just to say hi!).

Talks:

Talks have been pre-recorded but will remain unavailable on OSF presenter pages until after the live talk sessions. Talk sessions will be in the format of Zoom webinars. Talk videos will be played by the session moderators and speakers will be available as panelists for live Q and A during each session. Attendees are encouraged to use the Q and A feature to type their questions to presenters and the moderators will ask the questions on your behalf. Remember to @ the speaker your question or comment is directed towards (e.g., "@Deb: Great talk!"). Following the talk sessions, speakers will upload their pre-recorded talks to their OSF pages to be accessed at any time.

OPAM Program:

This program is designed to be interactive. In it, you will find links to individual presenter pages on OSF, links (and required passwords) to presenter Zoom meetings during the poster sessions, as well as links to live talk sessions and additional programming. We want to avoid Zoom bombers, so please don't share these links (or this program) publicly.

Visit our Twitter page during the conference for live updates and use #OPAM2020 for all of your OPAM-y tweets!

We are looking for PhDs, postdocs, and early-career faculty interested in technical consulting.

Exponent's nearly 1,000 employees comprise multi-disciplinary teams of scientists, engineers, physicians, and regulatory consultants across more than 90 disciplines and 23 domestic offices to solve complicated problems facing corporations, insurers, government entities, associations, and individuals.

Following OPAM 28, during the Psychonomic Society's meeting, we will be hosting one-on-one video conference sessions for graduate students and postdocs interested in a career at Exponent.

Friday, November 20, 2020 | 8:00 AM – 7:00 PM CST

Interested candidates who would like to schedule a session please use the following link:
https://calendly.com/opam_careers/opam-2020-industry-one-on-one

Robert Rauschenberger
Principal Scientist | Human Factors and past OPAM organizer | rrauschenberger@exponent.com

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OPAM 2020 SPONSORS

We are thankful for the support of our generous sponsors who help keep OPAM free for us all to enjoy. If you'd like to make a monetary contribution to future meetings of OPAM, you can donate through OPAM's GoFundMe page here.

John Henderson is currently accepting applications for a Postdoctoral position in his lab. Click here to view the job ad. Applicants must be U.S.-based.

2020 KEYNOTE ADDRESS

THURSDAY, NOVEMBER 19 || 4:00 - 4:55 PM (CENTRAL TIME)

links || JOIN ZOOM WEBINAR

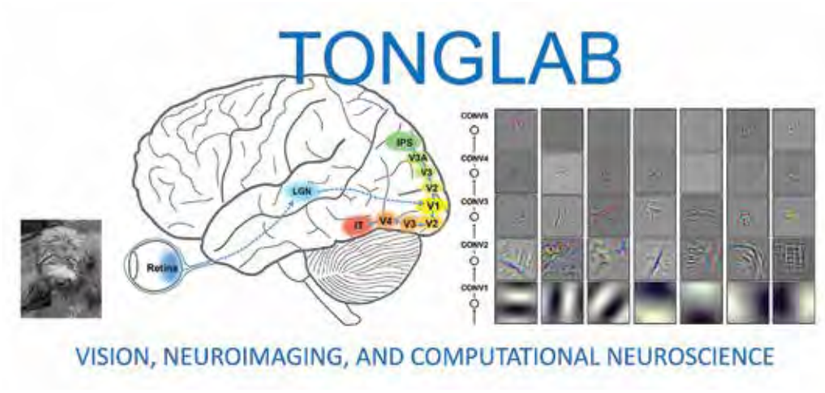
ON WHAT 25 YEARS OF VISION SCIENCE HAS TAUGHT ME AND HOW NAIVETÉ CONTINUES TO HELP

FRANK TONG, PHD.

Centennial Professor of Psychology
Professor of Ophthalmology and Visual Sciences
Vanderbilt University

Dr. Tong seeks to investigate, characterize and model the neural mechanisms that mediate human visual perception and cognition. His research leverages a combination of visual psychophysics, high-resolution fMRI, and advanced computational approaches for both data analysis and modeling. His lab has developed novel methods for decoding feature-selective responses from patterns of fMRI activity in the human visual cortex and applied these approaches to characterize the neural bases of visual working memory and object-based attentional selection. Most recently, his lab is developing, training, and testing deep convolutional neural networks as potential models for understanding the neural bases of human visual processing.

Dr. Tong is currently accepting applications for a Postdoctoral Fellow and prospective PhD students. If you're interested in a position in the Tong lab, contact Dr. Tong at frank.tong@vanderbilt.edu, and/or click here to find out more about the PhD program.



TONG LAB || Vanderbilt University | 111 21st Ave. S., | 301 Wilson Hall | Nashville, TN 37240

PROGRAM

QUICK LINKS:
OPAM OSF PAGE
OPAM WEBSITE

wednesday evening

3:15 - 3:30 PM CST — OPENING REMARKS
links || JOIN ZOOM WEBINAR

3:30 - 4:30 PM CST — CAREER PANEL
links || MORE INFO | JOIN ZOOM WEBINAR

ISABEL GAUTHIER
Editor, Journal of Experimental Psychology: Human Perception and Performance
David K Wilson Chair of Psychology, Vanderbilt University

ROBERT RAUSCHENBERGER
Principal Scientist, Human Factors, Exponent

CAITLIN MULLIN
Program Manager, VISTA

JEFF MOHER
Assistant Professor of Psychology, Connecticut College

4:30 - 5:00 PM CST — BREAK | links || ENTER OPAM LOBBY | lobby password: 424898

5:00 - 6:00 PM CST — TALK SESSION 1
links || ABSTRACTS | JOIN ZOOM WEBINAR

5:00 - 5:15 PM — **SPARSE EEG CONNECTIVITY PREDICTS COGNITIVE ABILITY IN HUMANS**
Nicole Hakim, Edward Awh, Edward K Vogel & Monica D Rosenberg
links || OSF PRESENTER PAGE

5:15 - 5:30 PM — **MULTIPLE ROUTES TO FACE RECOGNITION EXPERTISE**
Alice Towler, James Dunn & David White
links || OSF PRESENTER PAGE

5:30 - 5:45 PM — **OCULOMOTOR SUPPRESSION AND LOCATION PRIMING IN SCHIZOPHRENIA**
Sonia Bansal, Nicholas Gaspelin, Benjamin M Robinson, Britta Hahn & Steven J Luck
links || OSF PRESENTER PAGE

5:45 - 6:00 PM — **WHAT YOU'VE SEEN IS WHAT YOU EXPECT: HOW PRIOR EXPERIENCES INFLUENCE VISUAL SEARCH PERFORMANCE** Michelle R Kramer, Patrick H Cox, Stephen R Mitroff & Dwight J Kravitz
links || OSF PRESENTER PAGE

6:00 - 6:15 PM CST — BREAK | links || ENTER OPAM LOBBY | lobby password: 424898

6:15 - 7:15 PM CST — POSTER SESSION 1
links || PRESENTER LIST | ABSTRACTS

PROGRAM

QUICK LINKS:
OPAM OSF PAGE
OPAM WEBSITE

thursday morning

8:00 - 9:00 AM CST TALK SESSION 2

links || ABSTRACTS | JOIN ZOOM WEBINAR

8:00 - 8:15 AM
COLOR TYPICALITY INFLUENCES HOW OBSERVERS LEARN AND GENERALIZE COLOR-CONCEPT ASSOCIATIONS
Melissa B Schoenlein & Karen B Schloss
links || OSF PRESENTER PAGE

8:15 - 8:30 AM
THE ATTENTIONAL WHITE BEAR AS A FAILURE OF PROACTIVE SUPPRESSION
Alex Muhl-Richardson, Maximillian G Parker, Maria Tortosa-Molina, Sergio A Recio & Greg J Davis
links || OSF PRESENTER PAGE

8:30 - 8:45 AM
REAL-TIME PUPIL TRIGGERING DISENTANGLES SUSTAINED ATTENTION FROM WORKING MEMORY
Paul A Keene, Megan T deBettencourt, Edward Awh & Edward K Vogel
links || OSF PRESENTER PAGE

8:45 - 9:00 AM
WE SEE WHAT WE BELIEVE: PRIOR BELIEF BIASES CORRELATION PERCEPTION
Cindy Xiong, Chase Stokes & Steven Franconeri
links || OSF PRESENTER PAGE

9:00 - 9:15 AM CST BREAK

links || ENTER OPAM LOBBY | lobby password: 424898

9:15 - 10:15 AM CST TALK SESSION 3

links || ABSTRACTS | JOIN ZOOM WEBINAR

9:15 - 9:30 AM
EXPLICIT SIMILARITY JUDGMENTS AMPLIFY MEMORY BIASES
Joseph M Saito & Keisuke Fukuda
links || OSF PRESENTER PAGE

9:30 - 9:45 AM
'ADDITIVE AREA' BETTER EXPLAINS AREA JUDGMENTS THAN BOTH VERIDICAL MODELS AND SCALING MODELS
Sami Yousif, Richard Aslin & Frank Keil
links || OSF PRESENTER PAGE

9:45 - 10:00 AM
OBJECT CUED SPATIAL ATTENTION GUIDANCE
Ziyao Zhang & Nancy B Carlisle
links || OSF PRESENTER PAGE

10:00 - 10:15 AM
MELTING ICE CUBES WITH YOUR MIND: REPRESENTATIONAL MOMENTUM IN STATE-SPACE
Tal Boger, Alon Hafri & Chaz Firestone
links || OSF PRESENTER PAGE

10:15 - 11:15 AM CST DIVERSITY IN OPAM

links || MORE INFO | JOIN ZOOM MEETING | meeting password: 876961

FEMALES OF VISION ET AL (FOVEA)
Karen Schloss & Mary Peterson
links || WEBSITE

SPARK SOCIETY
Alejandro Lleras
links || WEBSITE

BLACK IN NEURO
Elena Dominguez
links || WEBSITE

11:15 - 11:30 AM CST BREAK

links || ENTER OPAM LOBBY | lobby password: 424898

PROGRAM

QUICK LINKS:
OPAM OSF PAGE
OPAM WEBSITE

thursday afternoon

11:30 - 12:30 PM CST **POSTER SESSION 2**
links || PRESENTER LIST | ABSTRACTS

12:30 - 1:30 PM CST **LUNCH** | links || ENTER OPAM LOBBY | lobby password: 424898

1:30 - 2:30 PM CST **POSTER SESSION 3**
links || PRESENTER LIST | ABSTRACTS

2:30 - 2:45 PM CST **BREAK** | links || ENTER OPAM LOBBY | lobby password: 424898

2:45 - 3:45 PM CST **TALK SESSION 4**
links || ABSTRACTS | JOIN ZOOM WEBINAR

2:45 - 3:00 PM
OBSERVED GAZE DYNAMICS IN SOCIAL INTERACTIONS ALTER THE PERCEIVED TEMPORAL ORDER OF EVENTS
Clara Colombotto, Yi-Chia Chen & Brian Scholl
links || OSF PRESENTER PAGE

3:00 - 3:15 PM
RECONSIDERING THE AUTOMATICITY OF VISUAL STATISTICAL LEARNING
Kevin Himberger, Christopher J Honey & Amy S Finn
links || OSF PRESENTER PAGE

3:15 - 3:30 PM
CONSCIOUS VISUAL PERCEPTION OF FACE IDENTITY REQUIRES AT LEAST 33 MS OF UNINTERRUPTED LOW-LEVEL PROCESSING AND 100 MS OF UNINTERRUPTED HIGH-LEVEL PROCESSING
Alison Campbell & James Tanaka | links || OSF PRESENTER PAGE

3:30 - 3:45 PM
VISUAL WORKING MEMORY CROWDING IN SIMULTANEOUS AND SEQUENTIAL PRESENTATIONS SUPPORTS THE SENSORY RECRUITMENT MODEL
Harun Yörük & Benjamin J Tamber-Rosenau
links || OSF PRESENTER PAGE

3:45 - 4:00 PM CST **BREAK** | links || ENTER OPAM LOBBY | lobby password: 424898

4:00 - 4:55 PM CST **KEYNOTE ADDRESS**
links || JOIN ZOOM WEBINAR
ON WHAT 25 YEARS OF VISION SCIENCE HAS TAUGHT ME AND HOW NAIVETÉ CONTINUES TO HELP
FRANK TONG, PHD
Vanderbilt University

4:55 - 5:10 PM CST **AWARDS & CLOSING REMARKS**
links || JOIN ZOOM WEBINAR

8:00 - 10:00 PM CST **OPAM GATHER.TOWN SOCIAL**
links || ENTER SOCIAL | meeting password: OPAM2020

POSTER SESSIONS

POSTER SESSION 1 WED 6:15 - 7:15 PM CST

01 **SEARCH DIFFICULTY AND VISUAL WORKING MEMORY LOAD: ASSESSING DISCREPANT FINDINGS**
Natalie A Paquette & Joseph Schmidt
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 113672

02 **DISTINCT NON-TARGET ITEMS REGULATE CATEGORY BOUNDARY SHIFTS AT LOW TARGET PREVALENCE**
Wanyi Liu, Olivia R Romito & Jeremy M Wolfe
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 518655

03 **INVESTIGATING NON-RIGID STRUCTURE-FROM-MOTION (SFM): A ROLE FOR BIOLOGICAL PLAUSIBILITY?**
Ryne Choi, Jacob Feldman & Manish Singh
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 481720

04 **TRANSSACCADIC UPDATING: EVIDENCE FOR OVERWRITING OF COLOR INFORMATION**
Jessica L Parker & Caglar Tas
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: saccade

05 **ACADEMICS ARE NO LONGER LOOKING FOR A CONNECTIONIST MODEL THAT IS MORE BRAIN-LIKE: A CONNECTIONIST MODEL THAT IS MORE BRAIN LIKE** Tsvi Achler
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: BS8G2T

06 **ALTERATION OF EARLY ATTENTIONAL PROCESSING AFTER ANALOGUE TRAUMA EXPOSURE: EVIDENCE FROM EVENT-RELATED POTENTIALS**
Laurent Grégoire, Lysanne Landry & Isabelle Blanchette
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: X3QMC18

07 **CHARACTERIZING ENGAGEMENT DYNAMICS DURING NARRATIVE COMPREHENSION**
Hayoung Song, Emily S Finn & Monica D Rosenberg
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 151186

08 **SUPPRESSION AS A POTENT MECHANISM OVERRIDING ATTENTIONAL CAPTURE BY SALIENT SINGLETONS**
Seah Chang & Howard Egeth
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 723604

09 **TRACKING MULTIPLE FISH**
Filip Dechterenko, Daniela Jakubkova, Jiri Lukavsky & Christina J Howard
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 275342

10 **VISUAL EVENT BOUNDARIES ELIMINATE ANCHORING EFFECTS IN DECISION-MAKING**
Robert Walter-Terrill, Joan Danielle K Ongchoco & Brian Scholl
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: anchoring

11 **UNSW FACE TEST: A SCREENING TOOL FOR SUPER-RECOGNIZERS**
James D Dunn, Stephanie Summersby, Alice Towler, Josh P Davis & David White
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 833895

12 **INVESTIGATING THE IMPACT OF DEVIATIONS FROM TYPICAL SLEEP ON COGNITIVE PERFORMANCE**
Sydni M Nadler, Michelle R Kramer, Samoni Nag & Stephen R Mitroff
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: Z2zeHd

13 **HOW UNIVERSAL IS SUBOPTIMAL VISUAL SEARCH STRATEGY?**
Walden Y Li, Molly R McKinney, Jessica L Irons & Andrew B Leber
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 925831

14 **WHAT DETERMINES THE SCOPE OF THE CONTROL MECHANISM**
Yoon Seo Lee & Yang Seok Cho
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: OPAM2020

15 **NO EFFECT OF SPATIAL ARRANGEMENT OF RESPONSE ALTERNATIVES ON THE SEQUENTIAL MODULATION OF SPATIAL CONFLICT**
Jieun Lee & Yang Seok Cho
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 82Comeon!!

16 **SPATIAL SELECTIVITY OF TARGET INFORMATION DIFFERS BETWEEN FIXED AND POST-SACCADIC VISUAL PROCESSING**
Chloe Callahan-Flintoft, Jonathan Touryan & Anthony Ries
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: xenn5s

17 **THE EFFECT OF CENTRAL AND PERIPHERAL VISUAL-FIELD DEFECTS SIMULATED BY A HEAD-MOUNTED DISPLAY WITH EYE TRACKER ON DRIVING SPEED AND LANE POSITION CONTROL** Yusuke Hachisuga & Takako Yoshida
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 9Lvz0W

18 **VISUAL ATTENTION MECHANISMS IN MAMMOGRAPHY**
Jonathan Li
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: s8avKZ

19 **EYE-SPECIFIC PROBABILITY CUEING EFFECT BY HISTORY-DRIVEN ATTENTION**
Eunhye Choe & Min-Shik Kim
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: ESPC

20 **SELECTION HISTORY IS RELATIVE**
Lana Mrkonja, Ming-Ray Liao, Mark K Britton & Brian A Anderson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 0XyLrR

21 **THE INTERACTION BETWEEN AUTOMATED ASSISTANT ACCURACY AND TASK DIFFICULTY IN A VISUAL SEARCH TASK**
Natalia A Menking, Gabriella Garcia, Addison Harvey, James Davis & Collin Scarince
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: iWYP5Y

POSTER SESSION 2 THURS 11:30 - 12:30 PM CST

22 **RELATIONSHIP BETWEEN COGNITIVE-COGNITIVE AND COGNITIVE-MOTOR DUAL TASK COSTS**
Lindsay A Santacroce, Stacey L Gorniak & Benjamin J Tamber-Rosenau
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: LAS22

23 **THE 2f-STST MODEL. EXPLAINING THE COGNITIVE MECHANISMS UNDERLYING TEMPORAL FEATURE (MIS)BINDINGS IN HUMAN VISUAL PROCESSING** Mahan N G Hosseini, Srivas Chennu, Alon Zivony, Brad Wyble, Martin Eimer & Howard Bowman
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 5SCtWj

24 **PERIPHERAL CUES CAN REPULSE UNBOUND FEATURES CLOSER TO FIXATION**
Cristina R Ceja & Steven L Franconeri
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 142785

25 **EFFECTS OF FATIGUE ON ATTENTION AND VIGILANCE AS MEASURED BY A MODIFIED ATTENTION NETWORKS TEST**
Brett B T Feltmate, Austin J Hurst & Raymond M Klein
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 3UrGjr

26 **USING A BETTING GAME TO REVEAL THE RICH NATURE OF VISUAL WORKING MEMORIES**
Syaheed B Jabar, Kartik K Sreenivasan, Stergiani Lentzou, Anish Kanabar, Timothy F Brady & Daryl Fougnie
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: memorybet

27 **"HONEY, I SHRUNK THE SCENE": PERCEIVED SPATIAL SCALE ALTERS MEMORY FOR SCENE BOUNDARIES**
Alon Hafri, Shreya Wadhwa & Michael F Bonner
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 833218

28 **DETECTION OF CHANGES TO OBJECTS IN COMPLEX SCENES - THE ROLE OF OBJECT IDENTITY AND LOCATION**
Giorgia D'Innocenzo, Sergio Della Sala & Moreno I Coco
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 1MZ6Cf

29 **"I" BEFORE "E" EXCEPT AFTER "C": DOES LEARNING RULES BEFORE EXCEPTIONS ENHANCE VISUAL OBJECT CATEGORY LEARNING?**
Emily M Heffernan & Michael L Mack
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: o2p0a2m0

30 **SCANNING RATE, BUT NOT DRILLING (MAGNIFICATION), IS SIGNIFICANTLY ASSOCIATED WITH ACCURACY IN PATHOLOGISTS' EVALUATION OF WHOLESLIDE IMAGES OF BREAST BIOPSIES** Mark Lavelle, Kathleen F Kerr, Hannah Shucard, Tad T Bruné & Donald L Weaver
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: aOCW2t

31 **SENSITIVITY VS. AWARENESS CURVE: A NOVEL MODEL-BASED ANALYSIS TO UNCOVER THE PROCESSES UNDERLYING NONCONSCIOUS PERCEPTION** Ali Pournaghdali, Bennett L Schwartz & Fabian A Soto
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: Z%9c59

32 **THE RECOGNITION OF OBJECT CONCEPTS SANS FEATURES: EFFECTS FROM BRIEF EXPOSURES USING ANAGLYPHS**
Caitlyn Antal & Roberto G de Almeida
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password:

33 **THE OFF-VERIDICAL TARGET TEMPLATE SUBSERVES ATTENTIONAL PROCESSES DIFFERENTLY DURING GUIDANCE AND DECISION STAGES OF VISUAL SEARCH** Xinger Yu & Joy J Geng
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 206610

34 **THE WOLF AMONG THE SHEEP: THREAT-RELEVANT STIMULI ARE NOT FOUND FASTER**
Yuri A Markov & Petr V Lyaskovsky
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 94638

35 **LEARNED SUPPRESSION REDUCES ATTENTIONAL CAPTURE BY STIMULI ASSOCIATED WITH REWARD AND THREAT**
Haena Kim, Matteson L Hansen & Brian A Anderson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 548948

36 **MIND'S EYE VS. MINE EYES: EFFECTS OF IMAGERY AND PERCEPTUAL PRIMING ON SINGLETON SEARCH**
James Dean Grindell, Ming-Ray Liao & Brian A Anderson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 335960

37 **MIXED CATEGORY BENEFIT FOR SERIAL RECOGNITION OF WORDS AND FACES**
Samantha C Lee, Matthew T Harrison & Lars Strother
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 120717

38 **GUIDING ATTENTION USING LEARNED TARGET-CATEGORY ASSOCIATIONS**
Juliana D Adema & Michael L Mack
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 686545

39 **PERFORMANCE-LINKED VISUAL ALERTS MODIFY RESPONSES DURING A SUSTAINED ATTENTION TASK**
Anjum Shaikh, Ashley Steinkrauss, Erin O'Brien Powers & Jeff Moher
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: BenZ2n

40 **DIFFERENCES IN AUTOMATIC AND DELIBERATE MOTOR SIMULATIONS INFLUENCE ITEM FREE RECALL RATES OF WORDS REPRESENTING MANIPULABLE OBJECTS** Christopher R Madan, Sasha Heneghan-Smith & Anthony Singhal
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 4npWcD

41 **SELECTION IN WORKING MEMORY IS RESOURCE-DEMANDING: CONCURRENT TASK EFFECTS ON THE RETRO-CUE BENEFIT**
Yin-ting Lin, Edyta Sasin & Daryl Fougnie
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 415765

42 **DECODING ANIMACY OF OBJECTS FROM EARLY AND INTERMEDIATE VISUAL AREAS**
Arnab Biswas, Krishna Kanhaiya Tiwari & Arunava Mukhoti
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 6EjmWn

43 **DISCONNECTED HAND AVATAR IN PERIPERSONAL SPACE**
Daisuke Mine & Kazuhiko Yokosawa
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 739513

44 **MOTIVATING STRATEGIC ATTENTIONAL CONTROL WITH MONETARY REWARD**
Molly R McKinney, Jessica L Irons & Andrew B Leber
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 370444

45 **THE LOCUS OF PROACTIVE INTERFERENCE IN VISUAL WORKING MEMORY**
Roy Shoval & Tal Makovski
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 8r7JgE

46 **CHROMATIC CONTRAST SENSITIVITY FUNCTIONS MEASURED USING OPTOKINETIC NYSTAGMUS AND PSYCHOPHYSICS**
Joel Pellicci, Patrick Goodbourn, Simon Cropper & Jason Forte
links || ABSTRACT | OSF PRESENTER PAGE

47 **PREDICTING MEMORY FROM INDIVIDUAL ATTENTIONAL STATE AND IMAGE MEMORABILITY**
Cheyenne D Wakeland-Hart, Megan T deBettencourt, Wilma A Bainbridge & Monica D Rosenberg
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 141904

POSTER SESSION 3 THURS 1:30-2:30 PM CST

48 **AGENCY-DRIVEN BIASES IN VISUAL SELECTIVE ATTENTION**
Adam C Vilanova-Goldstein, Greg Huffman & James R Brockmole
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 88043

49 **BRIDGING COGNITIVE AND NEUROPSYCHOLOGICAL MEASURES WITHIN A CLINICAL SAMPLE**
Melissa Trevino, Todd S Horowitz, Xiaoshu Zhu, Yi Yi Lu & Grace C Huang
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: T8b0hZ

50 **MOTIVATION-DEPENDENT EFFECTS OF SELECTION HISTORY**
Ming-Ray Liao, Pierre Lesne & Brian A Anderson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 986052

51 **PROACTIVE AND RETROACTIVE INTERFERENCE TRADE OFF ACROSS TRIALS IN A WORKING MEMORY CONSOLIDATION/RESPONSE SELECTION DUAL TASK** Brandon John Carlos & Benjamin J Tamber-Rosenau
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 1LNs26

52 **ESTIMATING THE STATISTICAL POWER TO DETECT SET-SIZE EFFECTS IN THE CONTRALATERAL DELAY ACTIVITY**
William X Q Ngiam, Kirsten C S Adam, Colin T Quirk, Edward K Vogel & Edward Awh
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 11313

53 **ENCODING COMPLEX OBJECTS IN MEMORY: THE VAE-BP MODEL OF WORKING MEMORY AND IMAGERY**
Shekoofeh Hedayati & Brad Wyble
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 897121

54 **BILINGUAL NON-SELECTIVE ACTIVATION MODULATES ATTENTIONAL GUIDANCE DURING VISUAL OBJECT SEARCH**
Naomi Vingron, Noah Furlani, Olivia Mendelson, Madelaine Thomas, & Debra Titone
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 5VsXcM

55 **RHYTHMIC REPRODUCTIONS REVEAL HOW EVENT SEGMENTATION STRUCTURES TEMPORAL EXPERIENCE**
Tristan S Yates, Joan Danielle K Ongchoco & Brian Scholl
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING

56 **DO THREAT-RELATED ATTENTIONAL BIASES TOWARD BICYCLISTS PROMOTE OR HINDER SAFE DRIVING?**
Andy Jeesu Kim, Anthony Mcdonald, Hananeh Alambeigi, Tara Goddard & Brian A Anderson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 5VsXcM

57 **TOP-DOWN AND BOTTOM-UP COMPETITION FOR SPATIAL REPRESENTATION OF FUTURE**
Mohsen Dolatabadi & Mehrdad Dowlatabadi
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 0i8tuF

58 **VALUE DRIVEN ATTENTIONAL SUPPRESSION**
Taylor Rigsby & Rebecca Goldstein
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 807158

59 **CAN SELECTION HISTORY INFLUENCE ATTENTIONAL BIAS FOR EMOTIONAL DISTRACTORS? EVIDENCE FROM 2 DOT-PROBE EXPERIMENTS**
Joshua W Maxwell, Lin Fang & Joshua M Carlson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: OPAM

60 **TRACKING THE TEMPORAL DYNAMICS OF DISTRACTION IN THE CONTEXT OF CONTINUOUS TASK PERFORMANCE**
Michelle J Blumberg, Geoffrey W Harrison & Daryl E Wilson
links || ABSTRACT | OSF PRESENTER PAGE | ZOOM MEETING | meeting password: F4CqEt

61 **PERSONALITY MEDIATES INDIVIDUAL DIFFERENCES IN ALLOCATION OF SPACE-BASED ATTENTION**
Linh Nguyen & Carly J Leonard
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Ryan E O'Donnell & Brad Wyble
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Vanessa L Gill & Anthony W Sali
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Kimberly W Wong, Joan Danielle K Ongchoco & Brian Scholl
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Lindsay Plater, Rachael Vella & Naseem Al-Aidroos
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Samantha Joubran, Tamanjit Padda & Naseem Al-Aidroos
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Joan Danielle K Ongchoco & Brian Scholl
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Kaleb T Kinder, Aaron T Buss & Caglar Tas
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OPAM CAREER PANEL

Hear about different careers in academia and industry
and ask a panel of experts how you can advance your own career goals.

WEDNESDAY, NOVEMBER 18 || 3:30 - 4:30 PM (CENTRAL TIME)

links || JOIN ZOOM WEBINAR

ISABEL GAUTHIER, PHD.

Dr. Gauthier is the David K. Wilson Chair of Psychology at Vanderbilt University. She uses behavioral methods, fMRI, and computational modeling to study how people perceive, recognize, and categorize objects. She currently serves as the Editor of the Journal of Experimental Psychology: Human Perception and Performance.

ROBERT RAUSCHENBERGER, PHD.

Dr. Rauschenberger is a Principal Scientist in Human Factors at Exponent. He conducts human factors and user research to improve the safety of consumer, healthcare, and online products. He currently oversees a team of experienced user researchers at Exponent's Phoenix User Research Center (PURC).

JEFF MOHER, PHD.

Dr. Moher is an Assistant Professor of Psychology at Connecticut College. He uses behavioral methods, EEG, and reach tracking to study the mechanisms of human distraction, including why distractions occur, when they are likely to arise, and what mechanisms people can use to avoid them.

CAITLIN MULLIN, PHD.

Dr. Mullin is the Program Manager of the Vision: Science to Applications (VISTA) program at York University. She works with an interdisciplinary team of researchers to provide fundamental advances in vision science and develop widespread applications for healthcare, industry, and society.

DIVERSITY IN OPAM

Hear about initiatives in the field that promote diversity
and participate in a town-hall style discussion about how we can help.

THURSDAY, NOVEMBER 19 || 10:15 - 11:15 AM (CENTRAL TIME)

links || JOIN ZOOM MEETING | meeting password: 876961

SPARK SOCIETY

The SPARK Society's mission is to establish a society of cognitive scientists of color that improves the visibility of its members and creates mentoring opportunities for junior cognitive scientists of color.

Representative: Alejandro Lleras

FOVEA

Females of Vision et al.'s (FoVea) mission is to increase the visibility, impact, and success of women in vision science, with the goal of achieving equal representation of men and women at the faculty level.

Representatives: Karen Schloss & Mary Peterson

SOME QUESTIONS TO CONSIDER BEFORE PARTICIPATING:

Why is enhancing diversity important?
How can we start conversations about diversity?
How can we support existing underrepresented minorities?
How can we recruit more diverse faculty, students, and staff?
What are the different ways that graduate students, postdocs, and faculty can help?
What actions can be taken at the institutional, departmental, or lab level?
How can we enhance diversity in the classroom?

BLACK IN NEURO

Black in Neuro is a platform created by and for neuroscientists, neuro-engineers, and science communicators whose mission is to celebrate, amplify, and support Black voices in STEM (science, technology, engineering, and math).

Representative: Elena Dominguez

For more discussion, check out the SPARK Society's panels at Psychonomics 2020 here.

ABSTRACTS

TALK SESSION 1

SPARSE EEG CONNECTIVITY PREDICTS COGNITIVE ABILITY IN HUMANS

Nicole Hakim, Edward Awh, Edward K Vogel & Monica D Rosenberg

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Every person has a unique and stable pattern of fMRI functional connectivity that predicts cognitive abilities. Are these connectivity patterns also present in temporally sensitive, but spatially insensitive, neural signals? To address this question, we compiled EEG data from two different data-collection sites (ns = 171 and 165). Our results revealed that EEG connectivity successfully identifies individuals. Furthermore, models based on these patterns predicted participants' working memory capacity and general fluid intelligence. Our results are the first demonstration of cross-dataset behavioral prediction using EEG data, and provide a new framework for characterizing individual differences in cognitive ability using EEG.

OCULOMOTOR SUPPRESSION AND LOCATION PRIMING IN SCHIZOPHRENIA

Sonia Bansal, Nicholas Gaspelin, Benjamin M Robinson, Britta Hahn & Steven J Luck

links || OSF PRESENTER PAGE

Impaired selective attention has been long recognized as a fundamental aspect of cognitive dysfunction in schizophrenia. In this study, we used sensitive measures of eye position to demonstrate that people with schizophrenia exhibit intact attentional control during visual search and can avoid distraction by salient irrelevant stimuli. However, we did find an increased influence of selection history in people with schizophrenia, and the magnitude of this effect was associated with individual differences in working memory and cognitive control.

MULTIPLE ROUTES TO FACE RECOGNITION EXPERTISE

Alice Towler, James Dunn & David White

links || OSF PRESENTER PAGE

Accurate face recognition is critical for daily life and in forensic settings. However, people frequently make errors on real-world face recognition tasks. Research has revealed three groups of face recognition expert: super-recognisers, forensic facial examiners, and face recognition algorithms. Here, we examine qualitative aspects of their expertise. Participants completed a face matching task and an international industry proficiency test. Experts achieved similarly high levels of accuracy, but critically, demonstrated qualitative differences in perceptual abilities and decisional strategies. These findings indicate that there are multiple pathways to face recognition expertise, and have important implications for theory and practice.

WHAT YOU'VE SEEN IS WHAT YOU EXPECT: HOW PRIOR EXPERIENCES INFLUENCE VISUAL SEARCH PERFORMANCE

Michelle R Kramer, Patrick H Cox, Stephen R Mitroff & Dwight J Kravitz

links || OSF PRESENTER PAGE

Using a massive dataset of visual search and object decision trials, the current study quantified the relationship between past events and the optimization of current behavior. First, it was shown, and independently replicated, that current performance systematically related to the relative frequency of prior trials of the same type by a function strikingly consistent with standard metrics of statistical evidence (e.g., z-score). Second, this relationship held even for distracting features that were orthogonal to the response and generally considered unattended. The generality and precision of the function provides theoretical and mechanistic insights to implicit memory.

TALK SESSION 2

COLOR TYPICALITY INFLUENCES HOW OBSERVERS LEARN AND GENERALIZE COLOR-CONCEPT ASSOCIATIONS

Melissa B Schoenlein & Karen B Schloss

links || OSF PRESENTER PAGE

Color-concept associations influence judgments (e.g., recognizing objects, interpreting information visualizations). People form these associations through statistical learning, and generalize to similar colors. Given that color similarity is asymmetric (non-prototypes are more similar to prototypes than vice versa), we predicted color-concept association generalization is also asymmetric. Participants first completed a category exposure task, observing two alien species appearing in prototypical or non-prototypical colors. They then rated associations between each species and each color from both color sets. Results supported our prediction, suggesting cognitive structure of color categories influences how people learn and generalize color-concept associations.

REAL-TIME PUPIL TRIGGERING DISENTANGLES SUSTAINED ATTENTION FROM WORKING MEMORY

Paul A Keene, Megan T deBettencourt, Edward Awh & Edward K Vogel

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Sustained attention and working memory are intricately related and fluctuate synchronously. These synchronous dynamics could arise from general fluctuations of task engagement or specific fluctuations of cognitive states. Across two experiments, we explore a putative signature of task engagement, pupil size, as subjects perform a sustained attention and working memory task. We develop a novel real-time pupil triggering technique to track pupil size fluctuations and adaptively design experiments. This technique demonstrates that pupil size covaries with sustained attention but not working memory. This distinction suggests that synchronous attention and working memory dynamics do not necessarily arise from general arousal.

THE ATTENTIONAL WHITE BEAR AS A FAILURE OF PROACTIVE SUPPRESSION

Alex Muhl-Richardson, Maximillian G Parker, Maria Tortosa-Molina, Sergio A Recio & Greg J Davis

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The attentional white bear (AWB) is a paradoxical effect where an effort to ignore something results in attention shifting towards it. In human vision, this parallels reactive distractor suppression, whereby distractors initially attract attention before subsequent rejection. However, the AWB could also arise from failed proactive suppression. To distinguish these possibilities, we employed a categorical visual search task, designed to eliminate top-down target guidance: only distractors were cued and target were unpredictable. We observed an AWB, but later eliminated it with a pre-search stimulus. We conclude that the AWB represents a failure of proactive distractor suppression.

WE SEE WHAT WE BELIEVE: PRIOR BELIEF BIASES CORRELATION PERCEPTION

Cindy Xiong, Chase Stokes & Steven Franconeri

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While people can somewhat accurately extract correlations from scatterplots, we demonstrate that they perceive correlations as stronger or weaker depending on their prior beliefs. Participants estimated correlations for identical data in scatterplots with axes labeled 'X' and 'Y' or with real-world variable pairs, separated by a distractor task. They then reported how strongly they believed there to be a correlation between the variable pairs. We found that people who believed the variable pairs to be correlated overestimated their correlation values significantly, while people who did not hold those beliefs underestimated the correlations significantly.

TALK SESSION 3

EXPLICIT SIMILARITY JUDGMENTS AMPLIFY MEMORY BIASES

Joseph M Saito & Keisuke Fukuda

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Memory representations are attracted towards novel perceptual input, particularly when the input is judged to be similar to the memory representation (i.e., similarity-induced bias, or SIB). However, it remains unclear if explicit similarity judgments play a causal role. To evaluate their contribution, participants were sequentially presented two visual stimuli (i.e., color, shape) to either compare for similarity or encode together into working memory (WM). SIB was observed in both tasks but was reliably larger following similarity judgments than simultaneous WM maintenance. This finding suggests that explicit similarity judgments amplify naturally-occurring attraction biases between task-relevant stimuli.

OBJECT CUED SPATIAL ATTENTION GUIDANCE

Ziyao Zhang & Nancy B Carlisle

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We know certain objects appear at typical locations in the environment. However, it remains unclear how this knowledge is acquired and used to influence behavior. Previous work on statistical learning of target locations leads to a general spatial bias, however typical locations of objects differ in the real world. We predicted people can learn multiple object spatial distributions on a timescale similar to statistical learning. In 4 cued search experiments, we found participants use object-specific spatial distributions to direct attention to high probable target locations. This implies rapid learning of object-specific spatial attentional biases.

'ADDITIVE AREA' BETTER EXPLAINS AREA JUDGMENTS THAN BOTH VERIDICAL MODELS AND SCALING MODELS

Sami Yousif, Richard Aslin & Frank Keil

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Most work on quantity estimation assumes one of two models of area perception is generally true: veridical models (wherein we perceive area accurately, based on a 'true pixel count'), or scaling models (wherein perceived area is equal to 'true' area raised to some exponent). Here, we demonstrate that 'additive area' better explains human area judgments than both models. These results have implications for how we control/estimate area in quantity perception tasks, and may also speak to a fundamental constraint of our visual system: the inability to properly integrate multiple spatial dimensions — even in exceedingly simple spatial tasks like these.

MELTING ICE CUBES WITH YOUR MIND: REPRESENTATIONAL MOMENTUM IN STATE-SPACE

Tal Boger, Alon Hafri & Chaz Firestone

links || OSF PRESENTER PAGE

Objects change not only their location, but also their state: Ice melts, grapes shrivel, and logs burn. How does the mind represent such changes? A foundational result in visual cognition is that memory extrapolates the positions of moving objects—a distortion called "representational momentum". Here, we show that representational momentum extends to physical *states*. In three experiments, participants who observed objects undergoing state-changes (e.g., melting) remembered them as more changed (e.g., more melted) than they actually were. Thus, different dynamic processes share a common cognitive profile: whether in position or state, the mind extrapolates how objects change.

TALK SESSION 4

OBSERVED GAZE DYNAMICS IN SOCIAL INTERACTIONS ALTER THE PERCEIVED TEMPORAL ORDER OF EVENTS

Clara Colombotto, Yi-Chia Chen & Brian Scholl

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Some of the most salient events we experience are social interactions, as in 'gaze deflection' -- wherein you quickly look away when someone 'catches' you staring at them. We discovered that perceiving such interactions is powerful enough to alter the perceived temporal order of events. Observers viewed animations of Person A turning her head in one direction to stare at Person B, and then both synchronously turning in the opposite direction. However, observers misperceived A as turning *after* B (after getting 'caught'). In this way, social perception can influence fundamental aspects of our experience, including what seems to happen when.

CONSCIOUS VISUAL PERCEPTION OF FACE IDENTITY REQUIRES AT LEAST 33 MS OF UNINTERRUPTED LOW-LEVEL PROCESSING AND 100 MS OF UNINTERRUPTED HIGH-LEVEL PROCESSING

Alison Campbell & James Tanaka | links || OSF PRESENTER PAGE

First, we discovered that as little as 4 ms of exposure to a familiar face was sufficient for face identification. We then conducted five backward-masking experiments that differed only in the type of mask used. Using diffeomorphic scrambles of target faces to interrupt low-level processing, roughly 33 ms of uninterrupted processing was needed for face identification. Using intact face images to interrupt high-level face processing, roughly 100 ms of uninterrupted processing was needed for face identification. The latter effects by the conceptual masks were then shown to be consistent with face-specific, identity-level processing.

RECONSIDERING THE AUTOMATICITY OF VISUAL STATISTICAL LEARNING

Kevin Himberger, Christopher J Honey & Amy S Finn

links || OSF PRESENTER PAGE

How do we learn about sequential regularities in our visual world? Previous work has suggested that visual regularities can be learned through "mere exposure" via implicit and automatic processes. However, in a standard visual statistical learning (VSL) paradigm, we found that learning performance varied dramatically (from chance to near-ceiling levels) across ten experiments. Moreover, we found that some evidence for implicit sequence knowledge derived from response times can actually arise from stimulus ordering confounds. Overall, we find that standard paradigms for measuring VSL track a learning process that is more volitional and attention-dependent than had been supposed.

VISUAL WORKING MEMORY CROWDING IN SIMULTANEOUS AND SEQUENTIAL PRESENTATIONS SUPPORTS THE SENSORY RECRUITMENT MODEL

Harun Yörük & Benjamin J Tamber-Rosenau

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The sensory recruitment model of visual working memory (VWM) suggests that perceptual and VWM representations both depend on retinotopic visual cortex. Harrison and Bays (2018) tested this model by assessing if a hallmark of visual crowding in retinotopic cortex—anisotropy between radial and tangential crowding—is present in VWM. They found evidence against such anisotropy, rejecting sensory recruitment. Here, we also tested the sensory recruitment model using crowding anisotropy, but we enforced location-feature binding as required by most VWM tasks. For both simultaneous and sequential VWM presentations, we found evidence of VWM crowding anisotropy, favoring the sensory recruitment model.

ABSTRACTS

POSTER SESSION 1

01. SEARCH DIFFICULTY AND VISUAL WORKING MEMORY LOAD: ASSESSING DISCREPANT FINDINGS

Natalie A Paquette & Joseph Schmidt

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 113672

Expecting a difficult search has been shown to increase target related visual working memory (VWM) load (when all aspects of search difficulty are manipulated and real-world objects are used) or produce stable target-related VWM load (when target verification difficulty is not manipulated and landolt-C's are used). To resolve this observers searched for landolt-C's with all aspects of search difficulty manipulated. An ERP indicator of VWM load (contralateral delay activity) was not modulated by expected difficulty, suggesting that target-related VWM load only varies with difficulty when searching for real-world objects.

02. DISTINCT NON-TARGET ITEMS REGULATE CATEGORY BOUNDARY SHIFTS AT LOW TARGET PREVALENCE

Wanyi Liu, Olivia R Romito & Jeremy M Wolfe

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 518655

Feedback determine how prevalence will influence categorical decisions about simple colors. With error feedback, fewer items on a blue-purple continuum are called blue. Without feedback, more items are categorized as blue. We investigated the effect of adding extremely un-blue (red to green) stimuli to conditions with low prevalence of blue targets. Our hypothesis was that in contrast to red-green dots more of the blue-purple items would be grouped into the blue category. However, results suggest that the additional colors reduced prevalence-induced criterion shifts. Irrelevant stimuli might be useful in controlling low prevalence effects (93 words).

03. INVESTIGATING NON-RIGID STRUCTURE-FROM-MOTION (SFM): A ROLE FOR BIOLOGICAL PLAUSIBILITY?

Ryne Choi, Jacob Feldman & Manish Singh

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 481720

SFM is the ability to perceptually infer 3D object structure from image motion. SFM research typically assumes rigidly moving objects. However some forms of non-rigid motion are also perceivable. We seek to understand what kinds of non-rigid transformations are readily perceived. In our displays, parts undergoing length change were misperceived as orientation change (Exp. 1), or as a fixed but "illusory" orientation (Exp. 2). Given the prevalence of part-orientation change in animate motion (limb articulation), the results suggests a perceptual bias towards more biologically-plausible interpretations of non-rigid motion.

04. TRANSSACCADIC UPDATING: EVIDENCE FOR OVERWRITING OF COLOR INFORMATION

Jessica L Parker & Caglar Tas

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: saccade

We have previously shown that the pre-saccadic representation of the saccade target object is overwritten by its post-saccadic representation when we asked participants to report either the pre- or the post-saccadic information. Studies which instead found feature integration asked participants to report feature information without specifying different states. Using the latter, we replicated our previous study. The response distributions were better fit by a bimodal than a unimodal model, with participants reporting the post-saccadic value in most trials. We conclude that transsaccadic updating is done via feature overwriting which does not depend on task instructions.

05. ACADEMICS ARE NO LONGER LOOKING FOR A CONNECTIONIST MODEL THAT IS MORE BRAIN-LIKE: A CONNECTIONIST MODEL THAT IS MORE BRAIN LIKE

Tsvi Achler

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: BS8G2T

"The goal of this work is to capture behavioral findings while adhering to a plausible connectionist model both during recognition and learning. Such modeling is essential to build deeper understanding of brain. The proposed model [1] displays several phenomena including ability to change priors beliefs [2], difficulty with similarity independent of spatial processing [3], and crowding effects when inputs are arranged spatially (unpublished). Here we show that it displays Network-Wide-Bursting (NWB) dynamics with surprise (unexpected inputs) using an example network that was trained on a digit data set common in computer science."

06. ALTERATION OF EARLY ATTENTIONAL PROCESSING AFTER ANALOGUE TRAUMA EXPOSURE: EVIDENCE FROM EVENT-RELATED POTENTIALS

Laurent Grégoire, Lysanne Landry & Isabelle Blanchette

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: X3QMC18

This study aimed to determine whether attentional processing is affected after analogue trauma exposure by controlling potential biases typically encountered in studies comparing existing groups. Participants viewed either a trauma or a neutral film before to perform an emotional Stroop task during which both continuous electroencephalographic activity and intrusive memories were measured. Exposure to the trauma film altered attention to emotional words at an early stage of processing (P1 component). Further analyses revealed a relationship between intrusions frequency, P1 amplitude and emotional Stroop effect, thus providing promising insight to explain the relationship between attention and intrusive memories after trauma exposure.

07. CHARACTERIZING ENGAGEMENT DYNAMICS DURING NARRATIVE COMPREHENSION

Hayoung Song, Emily S Finn & Monica D Rosenberg

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 151186

As we comprehend narratives, attentional engagement fluctuates over time. In behavioral studies, we estimated changes in subjective engagement during comprehension of two narratives. Engagement was synchronized across individuals perceiving the same story. FMRI data collected as people watched or listened to these stories revealed that default mode network activity was more synchronized across individuals when people were, on average, more engaged. Dynamic functional connectivity (FC) predicted engagement within and across datasets. These same FCs predicted event recall, suggesting that engagement during encoding has consequences for memory. These results show how engagement is reflected in dynamic brain activity and impacts memory.

08. SUPPRESSION AS A POTENT MECHANISM OVERRIDING ATTENTIONAL CAPTURE BY SALIENT SINGLETONS

Seah Chang & Howard Egeth

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 723604

The current study tested whether suppression alone (i.e., without target enhancement) can override attentional capture by a salient singleton in an otherwise-homogeneous background. On search trials, participants searched for a shape target, and learned the target and distractor colors. On interleaved probe trials, participants searched for a target letter presented on a color singleton or one of three gray ovals. Singleton facilitation effects were observed on neutral-colored and target-colored singleton trials, however, a singleton inhibition effect was found on distractor-colored singleton trials. The results demonstrate a powerful suppression mechanism overriding automatic capture by salient singletons.

09. TRACKING MULTIPLE FISH

Filip Dechterenko, Daniela Jakubkova, Jiri Lukavsky & Christina J Howard

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 275342

Divided attention is commonly studied using Multiple Object Tracking paradigm (MOT), however, it is unclear how tracking performance relates to real world tracking. In this project, we focused on validation of MOT task with respect to tracking real animate objects. For this purpose, we filmed fish in an aquarium and measured the participant's tracking performance. We compared individual differences in MOT task, in tracking real fish, and in artificial fish-like stimuli. Results suggest (N=53) that the correlation of tracking performance between both fish tracking and artificial fish-like tracking with typical MOT was large (rs = .71-.78).

10. VISUAL EVENT BOUNDARIES ELIMINATE ANCHORING EFFECTS IN DECISION-MAKING

Robert Walter-Terrill, Joan Danielle K Ongchoco & Brian Scholl

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password:

Visual event segmentation has profound consequences on attention and memory, but this work has rarely made contact with higher-level thought. Here we bridge this gap, asking whether subtle visual event boundaries can directly influence anchoring effects in decision-making. Subjects viewed a task-irrelevant numerical anchor (a CAPTCHA), virtually 'walked' down a hallway, then guessed the cost of a visually-depicted item (such as a suitcase). Robust anchoring effects from the CAPTCHA were eliminated when subjects passed through a virtual doorway -- demonstrating a surprisingly direct link between lower-level visual representation and higher-level thought.

11. UNSW FACE TEST: A SCREENING TOOL FOR SUPER-RECOGNIZERS

James D Dunn, Stephanie Summersby, Alice Towler, Josh P Davis & David White

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 833895

The UNSW Face Test (www.unswfacetest.com) is a new test specifically designed to screen for super-recognizers in large online cohorts and is available free for scientific use. Super-recognizers demonstrate sustained performance in the very top percentiles in face identification ability. Because they are rare, screening large online cohorts is beneficial to their recruitment. We show that the UNSW Face Test: (i) captures both identification memory and perceptual matching (ii) captures face-specific perceptual and memorial abilities (iii) enables stricter selection criteria than other available tests, which boosts the average accuracy of the individuals selected in subsequent testing.

12. INVESTIGATING THE IMPACT OF DEVIATIONS FROM TYPICAL SLEEP ON COGNITIVE PERFORMANCE

Sydni M Nadler, Michelle R Kramer, Samoni Nag & Stephen R Mitroff

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: Z2zeHd

Sleep is essential to human survival but is often neglected, causing a variety of cognitive and health-related problems. While extensive work has explored the impact of sleep deprivation on cognitive functioning, relatively little is known about how cognitive functioning is impacted by seemingly minor deviations in sleep (e.g., 1-3 hours less than typical). The current study examined this open issue using a variety of cognitive tasks. Initial analyses indicate that there is a potential relationship; for example, less sleep was related to worse performance in a visual search task.

13. HOW UNIVERSAL IS SUBOPTIMAL VISUAL SEARCH STRATEGY?

Walden Y Li, Molly R McKinney, Jessica L Irons & Andrew B Leber

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 925831

When people can choose among multiple visual search strategies, they tend to make suboptimal, or inefficient, choices (Irons & Leber, 2020). Lab studies have supported this notion, but the universality of such suboptimal behavior across the highly varied visual searches people perform everyday remains unknown. Here, we begin to systematically explore optimality across several tasks, which differed in the demands they place on feature-based attention, enumeration, and symbolic cue interpretation. Results showed that overall strategy use in all of these tasks was suboptimal, suggesting some universality in suboptimal visual search strategy, manifested via a variety of distinct cognitive operations.

14. WHAT DETERMINES THE SCOPE OF THE CONTROL MECHANISM

Yoon Seo Lee & Yang Seok Cho

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: OPAM2020

It has been suggested that the Stroop and Simon effects have different sources of conflict and they were resolved in different ways. The present study investigated whether conflict resolution relies on domain-general control when the task is performed with the same response mode. Participants were to perform a confound-minimized hybrid Stroop-Simon task with an unimanual aimed-movement method. The results showed that Stroop and Simon conflicts were resolved by domain-specific modulation processes. However, overlapping Stroop and Simon conflicts were also observed. Therefore, the present study cannot draw any conclusion regarding the specificity of control.

15. NO EFFECT OF SPATIAL ARRANGEMENT OF RESPONSE ALTERNATIVES ON THE SEQUENTIAL MODULATION OF SPATIAL CONFLICT

Jieun Lee & Yang Seok Cho

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 82Comeon!!

The congruency sequence effect (CSE) occurs between horizontal and vertical Simon tasks when they are performed with the same response mode, but not with different response modes. It has been suggested that spatial representations of response alternatives determine how stimulus alternatives are spatially represented. In the present study, participants were to perform horizontal and vertical Simon tasks in turn with a same response mode in which the spatial representation of response alternatives was bound into one or not. The CSE was not modulated by spatial arrangement of response alternatives in both experiments.

16. SPATIAL SELECTIVIEY OF TARGET INFORMATION DIFFERS BETWEEN FIXED AND POST-SACCADIC VISUAL PROCESSING

Chloe Callahan-Flintoft, Jonathan Touryan & Anthony Ries

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: xenn5s

Spatial filtering is a necessary capability of the visual system to parse task-relevant information from its surround in dense, complex scenes. This work teases apart the attentional mechanisms involved in post-saccadic fixations by exploring the time course of spatial filtering. Exogenous cues elicit rapid, brief spatial filtering. However, this time course is not recreated when target onset is time locked instead to the onset of fixation, suggesting that the execution of a saccade does not provide the same spatial selectivity as when the visual system can anchor the deployment of attention to the abrupt onset of a stimulus.

17. THE EFFECT OF CENTRAL AND PERIPHERAL VISUAL-FIELD DEFECTS SIMULATED BY A HEAD-MOUNTED DISPLAY WITH EYE TRACKER ON DRIVING SPEED AND LANE POSITION CONTROL

Yusuke Hachisuga & Takako Yoshida

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 9LvzOW

Establishing a car driving support system for low vision people with visual-field defects is an ongoing development but the effects of visual-field defects on driving behavior are unclear. To clarify these effects, especially of central and peripheral vision, we developed a driving simulator with visual-field defects using a head-mounted display (HMD) with eye trackers. We performed a pseudo visual-field limitation to a healthy person on the HMD and evaluated driving speed and lane position control. Different conditions simulating visual-field defects affected performance in the driving simulator which suggests an important role of peripheral vision for driving performance.

18. VISUAL ATTENTION MECHANISMS IN MAMMOGRAPHY

Jonathan Li

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: s8avKZ

When a radiologist finishes searching an image (e.g. a mammogram), did they look at "the whole image"? To answer this sort of question, we must know how large an area, surrounding the current point of fixation, is visually processed by the reader. We used eye tracking to measure this "Useful Field of View" (UFOV) for a set of mammograms. The goal of the current study is to measure a UFOV during the search in mammography and test whether UFOV can help us understand the search performance.

ABSTRACTS

19. EYE-SPECIFIC PROBABILITY CUEING EFFECT BY HISTORY-DRIVEN ATTENTION

Eunhye Choe & Min-Shik Kim

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: ESPC

Probability cueing effect refers to attentional bias to the location where the target is frequently presented. Here, participants performed a visual search in binocular rivalry, where the target was presented with a different probability depending on quadrants. The high-frequency quadrant was determined differently according to the eye in which the target was presented. The search was faster when the target was presented at the high-frequency location of the corresponding eye than of the other eye. These results suggest that eye selection history of the early visual processing contributes to forming eye-specific priority maps based on statistical learning.

20. SELECTION HISTORY IS RELATIVE

Lana Mrkonja, Ming-Ray Liao, Mark K Britton & Brian A Anderson

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: OXyLrR

Apart from feature-specific search, recent studies have shown that attention can be tuned to target-nontarget relationships. Here we tested whether a relational search strategy continues to bias attention in a subsequent task, where the relationally better color and former target color both serve as distractors (Experiment 1) or as potential targets (Experiment 2). We demonstrate that a relational bias can persist in a subsequent task in which color serves as a task-irrelevant feature. Our findings highlight a role of relational information in selection history as it pertains to the control of attention.

21. THE INTERACTION BETWEEN AUTOMATED ASSISTANT ACCURACY AND TASK DIFFICULTY IN A VISUAL SEARCH TASK

Natalia A Menking, Gabriella Garcia, Addison Harvey, James Davis & Collin Scarince

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In the current study, two experiments investigated how the accuracy of an automated aid and task difficulty affect visual search. Experiment 1 tested search performance based on the aid's accuracy (75% or 95% accurate). Experiment 2 tested whether the anticipated accuracy of the aid impacted search performance compared to a control group. The combined results of the two experiments revealed an interaction between aid accuracy and task difficulty. Hit rates and reaction times improved the most with an accurate assistant when search was difficult. The results highlight the importance of the human-system relationship when developing automated assistive technology.

POSTER SESSION 2

22. RELATIONSHIP BETWEEN COGNITIVE-COGNITIVE AND COGNITIVE-MOTOR DUAL TASK COSTS

Lindsay A Santacroce, Stacey L Gorniak & Benjamin J Tamber-Rosenau

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Dual-tasking (DT) reduces performance, both when cognitive tasks are combined (CC) or a cognitive task is paired with a motor task (CM). However, it is unknown if CC and CM performance costs stem from a common bottleneck. We measured both DT costs in the same 8 participants (CC: visuomanual mapping, auditory-oculomotor mapping; CM: serial sevens, walking). Serial sevens DT costs (change in correct count rate) and CC costs (speed) were negatively correlated (Pearson r: .40 to .77), with the auditory-oculomotor/serial sevens correlation achieving statistical significance, consistent with a common source of CC and CM DT costs.

23. THE 2f-STST MODEL. EXPLAINING THE COGNITIVE MECHANISMS UNDERLYING TEMPORAL FEATURE (MIS)BINDINGS IN HUMAN VISUAL PROCESSING

Mahan N G Hosseini, Srivas Chennu, Alon Zivony, Brad Wyble, Martin Eimer & Howard Bowman

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Conjunctions are intriguing errors in which subjects report that a feature of a distractor stimulus belonged to a target stimulus. This might happen in a rapid serial visual presentation (RSVP) experiment. For example, if the stimuli are coloured letters and a red E is the target and the distractor presented directly afterwards is a blue P, subjects would erroneously report that the P was red. We present the 2f-ST2 model, a computational model that explains this phenomenon and replicates several behavioural findings (i.e. response distributions and reaction time patterns) in addition to very recent neuroimaging (EEG) patterns.

24. PERIPHERAL CUES CAN REPULSE UNBOUND FEATURES CLOSER TO FIXATION

Cristina R Ceja & Steven L Franconeri

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Features (e.g., colors) can be misbound to incorrect locations in the absence of focal attention. We show that attention-demanding cues in the periphery can repulse features to be misperceived at locations closer to fixation. When cues were absent, participants accurately reported color locations. But when attending to peripheral cues, colors on the cued side of fixation were consistently misperceived closer to central fixation (and farther from the cue). This illusion was even stronger when the cue was presented in the right hemifield compared to the left hemifield, revealing an attentional hemifield asymmetry for the binding of simple features.

25. EFFECTS OF FATIGUE ON ATTENTION AND VIGILANCE AS MEASURED BY A MODIFIED ATTENTION NETWORKS TEST

Brett B T Feltmate, Austin J Hurst & Raymond M Klein

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At the beginning and end of two 8-hour testing sessions, participants completed a modified version of an attention network test developed by Luna et al. (2018) to include measures of arousal and executive vigilance, the mANTI-Vea. To observe the impact of fatigue on vigilance and attention, between mANTI-Vea administrations participants performed tasks intended to induce fatigue. Effects on executive & arousal vigilance, and RT derived orienting scores were observed with time-on-task (mANTI-Vea sub-blocks), whereas only arousal vigilance and RT derived executive functioning showed effects when comparing beginning to end-of-day performance.

26. USING A BETTING GAME TO REVEAL THE RICH NATURE OF VISUAL WORKING MEMORIES

Syaheed B Jabar, Kartik K Sreenivasan, Stergiani Lentzou, Anish Kanabar, Timothy F Brady & Daryl Fougnie

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When asked to hold a color in memory, what is stored? Are memory representations point estimates (e.g. a particular shade of red) or are they richer, such as uncertainty distributions over feature space? In a novel 'betting game', participants were shown colored circles and a random location probed after a delay. Instead of making single responses, participants made multiple bets. Bet spread correlated with performance and error magnitudes improved when averaging across multiple bets, even after controlling for motor noise. These results suggest that memory representations are rich, probabilistic, and can be probed per-trial by requiring multiple responses.

27. "HONEY, I SHRUNK THE SCENE": PERCEIVED SPATIAL SCALE ALTERS MEMORY FOR SCENE BOUNDARIES

Alon Hafri, Shreya Wadhwa & Michael F Bonner

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As visual details fade, the mind actively constructs scene representations, systematically extending or contracting image boundaries in memory—a central finding in visual cognition called "boundary transformation". Here, we show that this memory distortion is driven by normalization to canonical spatial scale, outward for small-scale scenes and inward for large-scale scenes. We manipulated perceived scale while preserving perceptual/semantic dimensions by making scenes appear as "miniatures" or as materials atop 3D-volumes. These manipulations induced powerful increases in boundary extension at the image-level. Thus, beyond internal image content, visual memories are normalized by perceived spatial scale itself.

28. DETECTION OF CHANGES TO OBJECTS IN COMPLEX SCENES - THE ROLE OF OBJECT IDENTITY AND LOCATION

Giorgia D'Innocenzo, Sergio Della Sala & Moreno I Coco

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Studies that have looked at the interaction between visual attention and visual working memory (VWM) suggest that object properties may be encoded and retained as individual features rather than as bound, coherent complexes. However, these studies have typically focused on simple and artificial stimuli. In the present study, we investigate the interaction between visual attention and VWM using a change detection task with complex real-life images of indoor scenes and real objects. We show that, even in naturalistic contexts, some object properties are encoded and maintained better than others – and this effect is comparable in young and older adults.

29. "I" BEFORE "E" EXCEPT AFTER "C": DOES LEARNING RULES BEFORE EXCEPTIONS ENHANCE VISUAL OBJECT CATEGORY LEARNING?

Emily M Heffernan & Michael L Mack

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We rapidly categorize everyday objects, often relying on visual similarity. But not all category members share category-defining features. How do we best learn exceptions to visual object categories? Here, we use a rule-plus-exception category learning paradigm to explore the impact of introducing exceptions (which violate category rules) at different times during learning. Surprise precipitates representations specialized to exceptions; thus, we predicted that delaying exception introduction would enhance surprise and improve learning. Behavioural results and model predictions supported this prediction, but improved exception categorization came at a cost: categorization of rule-following stimuli suffered with delayed exception introduction.

30. SCANNING RATE, BUT NOT DRILLING (MAGNIFICATION), IS SIGNIFICANTLY ASSOCIATED WITH ACCURACY IN PATHOLOGISTS' EVALUATION OF WHOLESLIDE IMAGES OF BREAST BIOPSIES

Mark Lavelle, Kathleen F Kerr, Hannah Shucard, Tad T Bruné & Donald L Weaver

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Medical diagnosis of breast tissue biopsies using digital whole slide imaging invites strikingly diverse strategies for image navigation and visual search. In the separate modality of CT screening for lung cancer nodules, distinct strategies, termed scanning and drilling, relate to both radiologists' clinical experience and accuracy in lesion detection. We sought to identify analogous strategies for resident and attending pathologists (N = 88) interpreting a set of breast biopsy cases representing the diagnostic spectrum from benign to invasive carcinoma. Contrary to our predictions, we found that diagnostic accuracy was statistically significantly associated with scanning rate but not drilling rate.

31. SENSITIVITY VS. AWARENESS CURVE: A NOVEL MODEL-BASED ANALYSIS TO UNCOVER THE PROCESSES UNDERLYING NONCONSCIOUS PERCEPTION

Ali Pournaghdali, Bennett L Schwartz & Fabian A Soto

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We present a novel model-based analysis of the association between awareness and perceptual processing based on general recognition theory (GRT). The analysis fits a GRT model to behavioral data and uses the estimated model to construct a sensitivity vs. awareness (SvA) curve, representing sensitivity in the discrimination task at each value of relative likelihood of awareness. In two experiments, we rendered emotional faces (fearful and neutral) invisible using continuous flash suppression. After fitting SvA curves to the data, we found evidence for the nonconscious processing of facial expression.

32. THE RECOGNITION OF OBJECT CONCEPTS SANS FEATURES: EFFECTS FROM BRIEF EXPOSURES USING ANAGLYPHS

Caitlyn Antal & Roberto G de Almeida

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Neuroimaging studies have made great strides towards understanding the neuronal correlates of object recognition. However, the nature of the information computed in activated areas remains elusive. We investigated the nature of object recognition using a picture-word congruency task with brief exposures (50-200 ms) using anaglyphs. Participants saw picture-word pairs corresponding to various feature types and object names. At 50 ms, object names yield faster responses than features. Prototypical features have advantage over other features only at 200ms. We suggest that concept tokening relies on non-decompositional processes, and that conceptual features are processed only after conceptual access.

33. THE OFF-VERIDICAL TARGET TEMPLATE SUBSERVES ATTENTIONAL PROCESSES DIFFERENTLY DURING GUIDANCE AND DECISION STAGES OF VISUAL SEARCH

Xinger Yu & Joy J Geng

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Theories of attention hypothesize target information is held in memory as a "target" template. Historically, it is believed more veridical templates produce faster and more accurate target detection. Recent work has shown "off-veridical" target templates can be more efficient when distractors are linearly separable from the target. However, it remains unclear how the "off-veridical" template is used during visual search. We found the initial capture of attention was primarily determined by the relative features of the target compared to surrounding non-targets, but the match-decision depended on a more precisely tuned template.

34. THE WOLF AMONG THE SHEEP: THREAT-RELEVANT STIMULI ARE NOT FOUND FASTER

Yuri A Markov & Petr V Lyaskovsky

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Studies demonstrated that threat-relevant stimuli detected quicker than threat-irrelevant stimuli and process automatically. However previous studies used perceptually highly different images - snakes/spiders vs mushrooms/flowers. We will investigate how observers search for threat-relevant and threat-irrelevant stimuli, which are highly similar. We used images of mammals (threatening and not threatening). In Exp1/Exp2 observers searched for threat-relevant image among threat-irrelevant images and vice versa. In Exp2 observers searched for threat-relevant/threat-irrelevant image among highly dissimilar neutral images. In both experiments, threat-relevant stimuli were not found faster - threat does not capture attention.

35. LEARNED SUPPRESSION REDUCES ATTENTIONAL CAPTURE BY STIMULI ASSOCIATED WITH REWARD AND THREAT

Haena Kim, Matteson L Hansen & Brian A Anderson

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Stimuli signalling reward and threat capture attention even when non-salient and task-irrelevant. Repeated presentation of a salient distractor at a particular location results in reduced attentional processing at that location. We examined whether reward- and threat-related stimuli can overcome such learned suppression. Participants first learned to suppress a particular location and associate colours with a valent (reward in Experiment 1, threat in Experiment 2) or no outcome (neutral). Next, valent and neutral distractors appeared in all locations equally often. Results showed additive effects of valence and location, suggesting that learned suppression and associative learning independently influence attention.

ABSTRACTS

36. MIND'S EYE VS. MINE EYES: EFFECTS OF IMAGERY AND PERCEPTUAL PRIMING ON SINGLETON SEARCH

James Dean Grindell, Ming-Ray Liao & Brian A Anderson

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Mental imagery has been shown to guide attentional selection, but how that compares with visual perception remains unclear. We had participants either focus on the color of a presented square or visualize the color in an empty square on each trial, before performing a shape singleton search task where the primed color can serve as target or distractor. This experiment also served as a proof of concept using JavaScript, JsPsych and JATOS (Just Another Tool for Online Studies) to interface with SONA, which allows us to run the experiment in a web browser without having to pay per participant.

37. MIXED CATEGORY BENEFIT FOR SERIAL RECOGNITION OF WORDS AND FACES

Samantha C Lee, Matthew T Harrison & Lars Strother

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Visual recognition of words and faces engages oppositely lateralized neural circuits. Preliminary results show that words and faces are processed serially when viewed in matched (word-word, face-face) pairs. We hypothesized that mixed pairs could be processed in parallel if sufficiently independent resources are engaged. We measured recognition accuracy for matched and mixed pairs under single- and dual-task conditions. We observed dual-task costs for both words and faces, but this cost was reduced by category mixing. Despite this mixed category benefit, we did not find evidence that words and faces in mixed pairs were processed in parallel.

38. GUIDING ATTENTION USING LEARNED TARGET-CATEGORY ASSOCIATIONS

Juliana D Adema & Michael L Mack

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In addition to saliency and goal-based factors, a scene's semantic contents have been shown to guide attention in visual search tasks. We ask if this rapidly available guidance signal can be leveraged to learn new attentional strategies. In a variant of the scene preview paradigm (Castelhano & Heaven, 2010), participants searched for targets embedded in naturalistic scenes with target locations linked to scene gist. We found that activating gist with scene previews significantly increased search efficiency in a manner consistent with formal theories of skill acquisition. These results suggest rapid scene perception can optimally guide attention in novel situations.

39. PERFORMANCE-LINKED VISUAL ALERTS MODIFY RESPONSES DURING A SUSTAINED ATTENTION TASK

Anjum Shaikh, Ashley Steinkrauss, Erin O'Brien Powers & Jeff Moher

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In the present study, we developed a visual feedback alert triggering system based on real-time tracking of response time (RT) in a sustained attention task. The goal was to understand when and how lapses of sustained attention occur so that we can intervene to prevent them. When feedback alerts corresponded to lapses in sustained attention, we found that alerting participants increased their response time. However, feedback alerts displayed at predetermined times did not elicit the same pattern. This study provides insight into the strategies participants use to reinstate focused attention.

40. DIFFERENCES IN AUTOMATIC AND DELIBERATE MOTOR SIMULATIONS INFLUENCE ITEM FREE RECALL RATES OF WORDS REPRESENTING MANIPULABLE OBJECTS

Christopher R Madan, Sasha Heneghan-Smith & Anthony Singhal

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Manipulability, how an object can be interacted with, can be considered a semantic dimension of an object that is even automatically processed when viewing images or words. Here we examined how automatic and deliberate motor simulations during an (initial) incidental encoding task influences later free recall. A second task of body-object interaction ratings was also included, yielding a 2×2 design. Different lexical and semantic word properties correlated with item recall rates for the different groups, indicating that the encoding tasks mediated how participants processed the words and subsequently remembered them.

41. SELECTION IN WORKING MEMORY IS RESOURCE-DEMANDING: CONCURRENT TASK EFFECTS ON THE RETRO-CUE BENEFIT

Yin-ting Lin, Edyta Sasin & Daryl Fougnie

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Does selection in memory involve attention? Many studies found that secondary attention tasks do not disrupt selection in memory (retro-cue effect). However, Janczyk and Berryhill (2014) found impaired retro-cue effects by a tone task presented after the cue; yet the tone response overlapped with the memory response. We tested whether this overlap plays a role in the impairment. We found that impaired cueing effects did not require response overlap but required articulatory suppression. Our work replicates Janczyk and Berryhill, but suggests that retro-cue effects are impaired only under certain conditions, e.g. overall task load is high.

42. DECODING ANIMACY OF OBJECTS FROM EARLY AND INTERMEDIATE VISUAL AREAS

Arnab Biswas, Krishna Kanhaiya Tiwari & Arunava Mukhoti

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Animate and inanimate objects activate distinct cortical regions in the ventral stream. Here we determine if relatively earlier regions (V1-V4 and LO) in the visual cortex contain information to decode the animacy of objects. We used demixedPCA to discover a two-dimensional latent space of animacy using voxel responses from fMRI data. Next, using a voxel-wise GLM model (accuracy 66.5%), we successfully decoded the animacy of objects. Most of the informational voxels for detecting animacy were present in the LO. These results suggest that the brain has access to information about animacy much before object-specific responses.

43. DISCONNECTED HAND AVATAR IN PERIPERSONAL SPACE

Daisuke Mine & Kazuhiko Yokosawa

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Peripersonal space is the space surrounding the body. Several studies have shown that the boundary of peripersonal space can be extended to space surrounding the tip of a tool held by the hand. We used a line bisection task to investigate whether peripersonal space representation surrounds a virtual hand avatar disconnected from the body. Results indicated no left to right shift in line bisection bias with increasing distance when using the virtual hand avatar. This result suggests that objects resembling human hands presented even at a distance and disconnected from the body can be integrated into the peripersonal space.

44. MOTIVATING STRATEGIC ATTENTIONAL CONTROL WITH MONETARY REWARD

Molly R McKinney, Jessica L Irons & Andrew B Leber

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People often use suboptimal visual search strategies, yielding slower and/or less accurate performance. We have proposed that avoidance of effortful, cognitively demanding processes is responsible for this tendency. Following this, we hypothesized that performance-contingent monetary reward would counter effort avoidance, motivating participants to choose optimal strategies. Using the Adaptive Choice Visual Search (Irons & Leber, 2016), which assesses strategy choice during search, we ran a high-N, high-powered study on Amazon Mechanical Turk to assess how reward impacts strategy choice. Results showed performance-contingent reward did increase optimal strategy use, demonstrating that motivation drives visual search strategy choice.

45. THE LOCUS OF PROACTIVE INTERFERENCE IN VISUAL WORKING MEMORY

Roy Shoval & Tal Makovski

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Visual Working Memory (VWM) performance is impaired when memory items are repeating throughout the experiment, probably due to Proactive Interference (PI). To scrutinize the mechanisms driving this effect, we tested how it affects encoding, retention, and retrieval. While PI led to slower responses (Experiment 1), different retention intervals did not affect the magnitude of the PI-effect (Experiment 2). Additionally, the PI-effect was reduced when encoding was stressed, likely because repeated items benefited from increased familiarity. These results suggest that PI in VWM occurs mainly during testing, thereby supporting the involvement of episodic long-term memory in the effect.

46. CHROMATIC CONTRAST SENSITIVITY FUNCTIONS MEASURED USING OPTOKINETIC NYSTAGMUS AND PSYCHOPHYSICS

Joel Pellicci, Patrick Goodbourn, Simon Cropper & Jason Forte

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Although previous studies have studied the relationship between human OKN and functional vision via measurement of the CSF, it has not been investigated using colour-varying, red-green, equiluminant patterns. The present study used spatial-frequency, band-pass luminance and red-green equiluminant noise patterns from 21 observers to measure OKN and perceptual report. The results of the study demonstrate that an equiluminant red green stimulus can evoke a robust OKN response. There was a high correlation between OKN and perceptual report, for both luminance and colour stimuli, an indication of a common neural mechanism for defining stimulus direction.

47. PREDICTING MEMORY FROM INDIVIDUAL ATTENTIONAL STATE AND IMAGE MEMORABILITY

Cheyenne D Wakeland-Hart, Megan T deBettencourt, Wilma A Bainbridge & Monica D Rosenberg

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We remember only a fraction of what we encounter in our daily lives. Our memory failures could reflect attention lapses or intrinsically forgettable items. However, the unique contributions of sustained attention and image memorability have never been tested. Using Amazon Mechanical Turk, we measured the memorability of images from a sustained attention task. We then predicted participants' subsequent image recognition from their attention dynamics and each image's memorability. Both pre-trial attentional state and image-specific memorability explained variance in memory. Considering individuals' internal state as well as the external visual world will allow for targeted forecasting of memory.

POSTER SESSION 3

48. AGENCY-DRIVEN BIASES IN VISUAL SELECTIVE ATTENTION

Adam C Vilanova-Goldstein, Greg Huffman & James R Brockmole

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Attention is biased toward objects over which we have agency (control). We examined interactions among agency-driven selection and other drivers of attention. Participants controlled the movement of one object while others moved independently. In a subsequent search task, targets that were previously controlled were found faster than those that were not. This benefit of agency augmented effects of endogenous cues and selection histories. Moreover, agency effects were observed when endogenous and exogenous cues were invalid and histories were incompatible with current needs. Thus, agency does not lose informative value when other additional drivers of selection are simultaneously available.

49. BRIDGING COGNITIVE AND NEUROPSYCHOLOGICAL MEASURES WITHIN A CLINICAL SAMPLE

Melissa Trevino, Todd S Horowitz, Xiaoshu Zhu, Yi Yi Lu & Grace C Huang

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Assessment of cognitive function in clinical populations, for both clinical and research purposes, is primarily based on neuropsychological testing. This approach is limited due to sensitivity and construct validity issues. To understand how neuropsychological tests relate to cognitive constructs in a clinical population, we used factor analysis to map the relationships between neuropsychological tests and cognitive paradigms in cancer survivors. Participants completed fourteen neuropsychological and experimental tests that have been described as attention measures. A three-factor solution was obtained, with four neuropsychological tests associating with cognitive paradigms; highlighting the need to expand cognitive science into the clinic.

50. MOTIVATION-DEPENDENT EFFECTS OF SELECTION HISTORY

Ming-Ray Liao, Pierre Lesne & Brian A Anderson

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The effects of selection history on attention is well established, but how motivation influences this process remains unclear. Depending on the condition, we induced positive or negative motivational states with random shocks or random rewards in a choice task (training phase). Participants completed a singleton search task (test) before and after training. Our findings suggest that motivational context induces an anxiety-dependent location bias that facilitated search in the positive group and impaired search in the negative group. Follow-up analyses will focus on changes in spontaneous eye blink rate, which has been shown to index dopamine release.

51. PROACTIVE AND RETROACTIVE INTERFERENCE TRADE OFF ACROSS TRIALS IN A WORKING MEMORY CONSOLIDATION/RESPONSE SELECTION DUAL TASK

Brandon John Carlos & Benjamin J Tamber-Rosenau

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Working memory (WM) dual-task studies demonstrate either proactive interference (PI) of WM encoding on a subsequent choice task or retroactive interference (RI) of the choice task on WM—but typically not both. Combining change-detection WM and parity judgment choice tasks, we observed both PI and RI in a single paradigm. No participant-level PI-RI relationship was found, suggesting that this observation does not stem from variability in task priority across participants. However, we did observe a relationship between PI and RI on the trial level, suggesting there could be trial-to-trial variability in WM consolidation speed.

52. ESTIMATING THE STATISTICAL POWER TO DETECT SET-SIZE EFFECTS IN THE CONTRALATERAL DELAY ACTIVITY

William X Q Ngiam, Kirsten C S Adam, Colin T Quirk, Edward K Vogel & Edward Awh

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A continued lack of statistical power leading to false positives is cited as a cause for the reproducibility crisis in science. To this end, we estimate the statistical power to detect set-size effects in the contralateral delay activity – an event-related potential that is commonly used to research visual working memory as it tracks the number of items retained in memory. We conducted subsampling analyses and modeling of two major datasets (Unsworth et al., 2015, Hakim et al., 2019) and show a large number of trials and subjects, beyond what is typically collected, is required to achieve sufficient power.

53. ENCODING COMPLEX OBJECTS IN MEMORY: THE VAE-BP MODEL OF WORKING MEMORY AND IMAGERY

Shekoofeh Hedayati & Brad Wyble

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To explore mechanisms that support the flexibility of working memory representations, we created a memory model that combines a modified variational autoencoder (VAE) with the Binding Pool (BP) model of WM and trained it on colorized handwritten digits (i.e. MNIST). This generative model has two maps for representing color and shape of an object, which allows for selectively controlling the ratio of stored features. These features are stored in a single memory trace along with their categorical labels. The generative property of the model allows for projecting reconstructed memories into image space and to build memories of novel shapes.

ABSTRACTS

54. BILINGUAL NON-SELECTIVE ACTIVATION MODULATES ATTENTIONAL GUIDANCE DURING VISUAL OBJECT SEARCH

Naomi Vingron, Noah Furlani, Olivia Mendelson, Madelaine Thomas, & Debra Titone

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 5VsXcM

Bilinguals activate knowledge from both known languages when interacting with their environment (i.e., non-selective activation). Evidence of this comes from first and second language reading, when ambiguity resulting from words sharing form but not meaning impedes processing (interlingual homographs; e.g., CRANE - skull in French, machine in English). This study investigates how such effects extend to object processing to inform broader debates about the language-vision link. We tested French-English bilinguals on a visual search task that manipulated cross-language ambiguity. We found that searchers flexibly integrate linguistic and visual input to resolve cross-language ambiguity.

55. RHYTHMIC REPRODUCTIONS REVEAL HOW EVENT SEGMENTATION STRUCTURES TEMPORAL EXPERIENCE

Tristan S Yates, Joan Danielle K Ongchoco & Brian Scholl

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We cannot perceive events without an underlying temporal medium, yet event structure can also influence time perception. Here we explore how event structure can simultaneously dilate and contract perceived time, using a novel 'rhythmic reproduction' task in which the positions of event boundaries were systematically varied. People heard musical-note sequences containing salient (but task-irrelevant) event boundaries, and reproduced the perceived rhythms. Reproductions revealed systematic, non-uniform distortions -- with inter-note latencies across boundaries dilated and those within perceived events contracted. Thus, event segmentation may facilitate a give-and-take between the subjective expansion and contraction of time.

56. DO THREAT-RELATED ATTENTIONAL BIASES TOWARD BICYCLISTS PROMOTE OR HINDER SAFE DRIVING?

Andy Jeesu Kim, Anthony Mcdonald, Hananeh Alambeigi, Tara Goddard & Brian A Anderson

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 67033

Attention is biased toward threatening objects. Many drivers perceive close encounters with bicyclists as threatening, permitting an examination of the implications of threat-related attentional biases with respect to real-world behavior. We examined whether participants in a driving simulator perceived encounters with bicyclists as threatening and how this modulated driving behavior. The results revealed increased biophysiological responses when the bicyclist is in the driver's field of view in addition to increased eye movements toward the bicyclist, which were associated with safer driving. Our findings offer a real-world demonstration of how threat-related attentional biases can be adaptive.

57. TOP-DOWN AND BOTTOM-UP COMPETITION FOR SPATIAL REPRESENTATION OF FUTURE

Mohsen Dolatabadi & Mehrdad Dowlatabadi

links || OSF PRESENTER PAGE | ZOOM MEETING | meeting password: 0i8tuF

Embodied cognition shows itself in many aspects of life including representation of time in association to space which is called synesthesia. A competition between mental timeline and random dot motion paths designed. Method: participants: 64 right-handed male students knowing Persian and claiming elementary English knowledge. We randomly assigned participants to two experiments either congruent (rightward or upward dots motion path) or incongruent following previous findings of the preference for the location of the future in space. Question :"Is future up (right) or down (left)?" Results: The reaction times revealed that groups with congruent conditions were significantly faster.

58. VALUE DRIVEN ATTENTIONAL SUPPRESSION

Taylor Rigsby & Rebecca Goldstein

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The present study was designed to test how unavoidable monetary loss associated with a non-critical feature would affect attentional priority by utilizing a value association paradigm and suppression measurement methodologies. Participants completed a test phase wherein the unavoidable loss color from training phase appeared as a distractor on 50% of trials. The presence of the unavoidable loss color did not produce a detriment or benefit in reaction times, but accuracy improved. Fewer probes were reported at the unavoidable loss color location compared to neutral distractors during test phase. These findings suggest that not all value associations lead to capture.

59. CAN SELECTION HISTORY INFLUENCE ATTENTIONAL BIAS FOR EMOTIONAL DISTRACTORS? EVIDENCE FROM 2 DOT-PROBE EXPERIMENTS

Joshua W Maxwell, Lin Fang & Joshua M Carlson

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Attentional bias for task-irrelevant distractors can be moderated by the selection history of the distractor – otherwise known as a carryover effect. Such carryover effects for emotional distractors have yet to be established for the dot probe task. In two highly powered dot-probe experiments using emotional facial expressions (N=241) and emotional images (N=82), we did not observe an influence of selection history on attentional bias for emotional distractors. We conclude that although selection history may – in some instances – influence attentional bias for emotional distractors, no such influence appears to occur in the standard dot-probe task.

60. TRACKING THE TEMPORAL DYNAMICS OF DISTRACTION IN THE CONTEXT OF CONTINUOUS TASK PERFORMANCE

Michelle J Blumberg, Geoffrey W Harrison & Daryl E Wilson

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Existing paradigms used to examine attentional capture are limited by the presentation of stimuli that are not entirely task irrelevant. Moreover, most paradigms require participants to make a simple rapid response to the presence of a specific target, preventing the ability to measure the duration of distraction. We present a novel method using eye-tracking that enables us to track the temporal dynamics of distraction while participants engage in a continuous target identification task. This methodology revealed that entirely irrelevant distractors are capable of capturing attention over several responses following the initial presentation of a distractor.

61. PERSONALITY MEDIATES INDIVIDUAL DIFFERENCES IN ALLOCATION OF SPACE-BASED ATTENTION

Linh Nguyen & Carly J Leonard

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This study investigates how variance in personality traits, specifically openness and neuroticism, may relate to individual differences in visuospatial attention. Using a variation of an attentional blink task that is particularly sensitive to spatial attention (Leonard, Balestreri, & Luck 2015), we measured magnitude of distractor interference across 4 distances from fixation. As predicted, high neuroticism was associated with increased interference from nearby distractors relative to lower neuroticism, showing a spatially narrow attentional window. Contrarily, high openness was associated with decreased interference from distractors. Overall, the results show that variation in personality relates to differences in attentional allocation.

62. WHAT IS THE POTENTIAL OF DECODING?: A COMPARISON OF ERP TO MACHINE LEARNING CLASSIFICATION ANALYSES

Ryan E O'Donnell & Brad Wyble

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We sought to compare the effects of visual presentation formats (RSVP vs Single-presentation) on two common methods of EEG analysis. Participants completed two different target identification tasks (targets could be a face or body) under different visual presentations as EEG data was recorded. Recorded data was analyzed using conventional ERP techniques as well as machine learning classification techniques. The two analyses lead to different conclusions about the influences of presentation format on cognitive processes, with ERP revealing differences in P3 amplitudes and latencies whereas machine learning demonstrating no substantial differences in classification accuracy or latency between formats.

63. TRACKING OBJECTS THROUGH THE ZONE OF DESTRUCTION IN LONG-TERM MEMORY

Emma E Megla & Geoffrey F Woodman

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Which memories will we end up forgetting? One theory makes the counterintuitive prediction that the memories we forget are not the weakest memories, but those stored with medium activation levels, with these medium strength competitors living in the zone of destruction when faced with competitive stress. Here we measured the frontal positivity, a neural index of memory activation, during encoding memory. We found that the visual representations encoded with a medium strength were more prone to forgetting than the stronger or weaker memories, but only in the face of competition.

64. TRACKING COLOR WORKING MEMORY PRECISION ACCORDING TO LEARNED COGNITIVE FLEXIBILITY

Vanessa L Gill & Anthony W Sali

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We investigated whether the frequency of color working memory (WM) updating was associated with a reduction in WM precision. Using a 1-back task, we manipulated WM updating frequency across blocks of trials. Within each block, participants were periodically instructed to select on a color-wheel the color they last saw. We found that participants had smaller updating costs in high update likelihood blocks than in low update likelihood blocks, demonstrating learned cognitive flexibility. Importantly, participants were also less precise when frequently updating than when infrequently updating, demonstrating that updating likelihood may carry consequences for the precision of WM representations.

65. THE TEMPORAL RESOLUTION OF SUBJECTIVE TIME DILATION: IS THE 'ODDBALL EFFECT' SPECIFIC TO THE ODDBALL ITSELF?

Kimberly W Wong, Joan Danielle K Ongchoco & Brian Scholl

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In the 'oddball effect', a single object which grows in size (in a sequence of otherwise-static objects) appears to last longer. Here we explore the temporal resolution of this effect: is oddball-induced time dilation specific to the oddball itself? Observers viewed sequences of static colored discs with a single oddball, and across trials reproduced various discs' durations. We observed time dilation not only for the oddball disc itself, but also for the immediately following (but not preceding) disc. Oddballs may orient attention not only to the present moment, but also to what is about to unfold next.

66. MAINTAINING A LARGE LONG-TERM MEMORY ATTENTIONAL CONTROL SET COMES WITH A COST

Lindsay Plater, Rachael Vella & Naseem Al-Aidroos

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Attentional control settings (ACSs) determine which stimuli capture attention. Humans can maintain an ACS for 4-30 complex visual objects using episodic long-term memory (LTM). It takes longer to search through larger sets of LTM representations than smaller sets; accordingly, we tested whether a large LTM ACS delays attentional capture. Participants memorized and searched for either 5 or 100 complex visual objects during a spatial blink task. For set-size 100, we found reduced, but longer-lasting effects of attentional capture, suggesting there is a cost to large ACSs. Attentional control is limited by the speed of LTM recognition.

67. WHERE BUT NOT WHO: ATTENTION TO IDENTITIES AND LOCATIONS IN GROUPS

Helen Ma & Dana A Hayward

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The gaze cueing effect (GCE) occurs when a single gaze shifts attention, leading to faster responses for gazed-at items (Friesen & Kingstone, 1998). Little is known regarding how multiple gazes, with varying predictiveness, will affect attention. We altered the gaze cueing task by presenting three faces instead of one. Predictiveness was operationalized by designating a face location (left, middle, right) or face identity to be predictive of target location. Results revealed a GCE in the Location, but not the Identity, condition, suggesting either location information is more salient than identity information, or that identity information suppresses GCE in group contexts.

68. EXPANDING THE CONTINGENGY OF CONTINGENT ATTENTIONAL CAPTURE

Samantha Joubran, Tamanjit Padda & Naseem Al-Aidroos

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Is attention automatically captured to the location of salient stimuli, or is capture under our control? The best evidence that capture can be controlled comes from contingent capture: when looking for a visual target, distracting stimuli only capture attention if they resemble the target. Here we assessed another level to this contingency. If "red" is associated with targets in the right side of space, will task-irrelevant red distractors presented to the left capture attention to the left—their physical location—or right—goal-relevant location? Our results favour the latter, suggesting contingent capture is more contingent than we thought.

69. HALLUCINATING VISUAL STRUCTURE: INDIVIDUAL DIFFERENCES IN 'SCAFFOLDED ATTENTION'

Joan Danielle K Ongchoco & Brian Scholl

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When staring at a regular pattern -- e.g. a piece of graph paper -- many people see more than the squares themselves; they also spontaneously see fleeting shapes and symbols (e.g. block-letters) that encompass multiple squares. This is the phenomenon of 'scaffolded attention' (where shifting patterns of attention effectively form visual objects), but not everyone experiences this type of 'visual hallucination of structure' to the same degree. Here, in an individual-differences study, we discovered that the prevalence of scaffolded attention is predicted by measures of both mental imagery and attentional breadth (but not sustained vigilance).

70. TRACKING FLANKER TASK DYNAMICS: EVIDENCE FOR CONTINUOUS ATTENTIONAL SELECTIVITY

Kaleb T Kinder, Aaron T Buss & Caglar Tas

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There are two main accounts that describe how selective attention unfolds over time: One proposes that selective attention improves continuously, whereas the other proposes that attention discretely transitions from a low- to a high-state of selectivity. The present study utilized mouse-tracking to examine spatial (e.g., curvature) and temporal movement dynamics (e.g., maximum deviation time) in a flanker task to compare these two accounts. Our results showed strong evidence in favor of continuous selective attention: Attentional selectivity increased gradually over time, rather than switching from a low- to a high-state of selectivity at a discrete timepoint.

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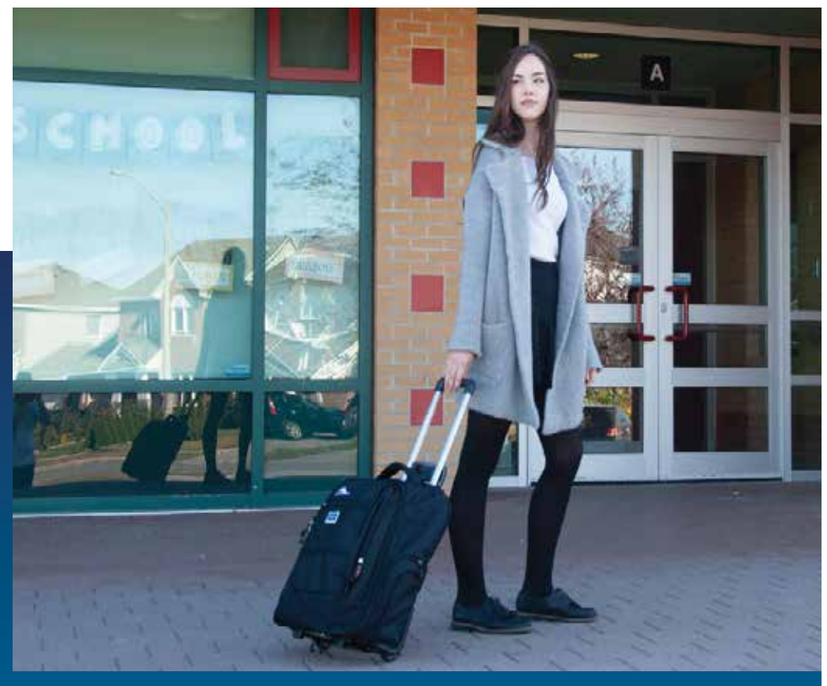

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