



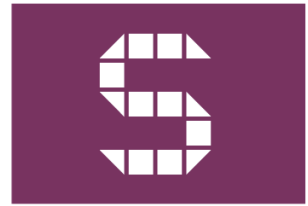
VIRTUAL



WORKING



MEMORY



SYMPOSIUM

June 1 - 4, 2021

VWMS 2021 PROGRAM



+



[Join VWMS on zoom](#)

Single-stream talk sessions
Live and pre-recorded talks
Moderated Q&A discussions

[Join VWMS on slack](#)

Post questions for speakers
Chat with other attendees
React with gifs and emojis



Video recordings with closed-caption transcripts will be available for each session

Organizers

Contact us: On [slack](#) or at vwms2021@gmail.com

Edward Ester, University of Nevada, Reno
Jarrold Lewis-Peacock, University of Texas at Austin

William Ngiam, University of Chicago
Kirsten Adam, University of California San Diego



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Schedule at a Glance

All times EDT (GMT-04)

	Tuesday June 1	Wednesday June 2	Thursday June 3	Friday June 4
EDT				
10:00 AM	WELCOME			
10:15 AM	A1	F1	C2	H2
10:30 AM				
10:45 AM				
11:00 AM	Discussion	Discussion	Discussion	Discussion
11:15 AM				
11:30 AM	B1	G1	D2	A3
11:45 AM				
12:00 PM				
12:15 PM				
12:30 PM	Discussion	Discussion	Discussion	Discussion
12:45 PM				CLOSING
1:00 PM	C1		E2	
1:15 PM				
1:30 PM				
1:45 PM		H1		
2:00 PM	Discussion		Discussion	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM				
3:15 PM	D1	A2	F2	
3:30 PM				
3:45 PM				
4:00 PM				
4:15 PM	Discussion	Discussion	Discussion	A - Maintenance
4:30 PM				B - Representations
4:45 PM	E1	B2	G2	C - Attention
5:00 PM				D - Control
5:15 PM				E - Long-Term Memory
5:30 PM				F - Perception
5:45 PM	Discussion	Discussion	Discussion	G - Differences
6:00 PM				H - Performance

RAP
BATTLE

VIRTUAL
SOCIAL

Daily Schedule

All times EDT (GMT-04)

Tuesday June 1, 2021

10:00 *Welcome, history, and overview of VWMS*
Edward Ester, University of Nevada, Reno
Jarrold Lewis-Peacock, University of Texas at Austin
William Ngiam, University of Chicago
Kirsten Adam, University of California San Diego

A1

MAINTENANCE 1

Tuesday June 1, 10:15 am - 11:15 am

Moderator: **Freek van Ede**, Vrije Universiteit Amsterdam

10:15 *Dynamic perturbation during retention alters human multi-item working memory*
Jiaqi Li¹, Qiaoli Huang¹, Qiming Han¹, Yuanyuan Mi², Huan Luo¹
¹Peking University, ²Chongqing University

10:30 OPEN (Retracted)

10:45 *Ordinal position code in auditory sequence working memory in humans*
Ying Fan, Huan Luo
Peking University

11:00-11:15 am – General Discussion



B1

REPRESENTATION 1

Tuesday June 1, 11:30 am - 12:45 pm

Moderator: **Marian Berryhill**, University of Nevada, Reno

[11:30](#) *Evidence for chunking of global and local representations in working memory*



Yuhang Li¹, Qiyang Nie¹, Ronald Van den Berg²

¹ University of Macau, ² Stockholm University

11:45 *Mapping serial order in working memory: An fMRI study*

Giulia Cristoforetti¹, Muhammet Ikbal Sahan¹, Jean-Philippe van Dijck¹,
Steve Majerus², Wim Fias¹

¹ University of Ghent, ² University of Liege

[12:00](#) *Comparison of temporal grouping effects in musical and verbal short-term memory:*



Is serial order representation domain-general?

Simon Gorin

Swiss Distance University Institute

12:15 *Remembering what happened when: Emergence and stability of hippocampal sequences linking memories across time*

Giannis Taxidis, Peyman Golshani

David Geffen School of Medicine, University of California Los Angeles

12:30-12:45 pm – General Discussion



C1

ATTENTION 1

Tuesday June 1, 1:00 pm - 2:15 pm

Moderator: **Klaus Oberauer**, University of Zurich

1:00 *Attentional error signals induce adaptation of spatial working memory*

James Brissenden, Taraz Lee

University of Michigan

[1:15](#) *Is the accessibility of the item in the internal focus of attention heightened or reduced?*



Caro Hautekiet, Naomi Langerock, Evie Vergauwe

University of Geneva

[1:30](#) *Attentional control settings and visual working memory*



Lindsay Plater, Blaire Dube, Maria Giammarco, Kirsten Donaldson, Krista Miller, Naseem Al-Aidroos

University of Guelph

[1:45](#) *Reduced attentional control in older adults leads to deficits in flexible prioritization of visual working memory: Future directions*



Sarah E. Henderson, Holly A. Lockhart, Emily E. Davis, Stephen M. Emrich, Karen L. Campbell

Brock University

2:00-2:15 pm – General Discussion



BREAK 2:15 - 3:15 pm

D1

CONTROL 1

Tuesday June 1, 3:15 pm - 4:30 pm

Moderator: **Barry Giesbrecht**, University of California, Santa Barbara

3:15 *No evidence for proactive suppression: Enhancement of explicitly cued distractor features*

Douglas A. Addleman, Viola S. Störmer
Dartmouth College

3:30 *How do visual distractors affect working memory precision of realistic objects?*

Olga Leticevscaia, Eva Feredoes
University of Reading

[3:45](#) *Analogous computations in working memory input, output and motor gating:*



Electrophysiological and computational modeling evidence

Rachel Rac-Lubashevsky, Michael Frank
Brown University

4:00 *When do we know that we do not know? An examination of metacognitive processes in visual working memory*

Julia Krasnoff, Klaus Oberauer
University of Zurich

4:15-4:30 pm – General Discussion



E1

LONG-TERM MEMORY 1

Tuesday June 1, 4:45 pm - 6:00 pm

Moderator: **Nathan Rose**, University of Notre Dame

[4:45](#) *From working memory to long-term memory - across the lifespan*



Alicia Forsberg¹, Dominic Guitard^{1,2}, Eryn J. Adams¹, Nathaniel Greene¹, Duangporn Pattanakul¹, Moshe Naveh-Benjamin¹, Nelson Cowan¹

¹ University of Missouri, ² Université de Moncton

5:00 *Conceptual grouping increases both the capacity and precision of visual working memory*

Andrew Clement¹, Y. Isabella Lim², Jay Pratt²

¹ Texas A&M University, ² University of Toronto

5:15 *Effects of reactivating latent working memory on age differences in working memory and subsequent long-term memory*

Chang-Mao Chao, Nathan Rose

University of Notre Dame

[5:30](#) *Tracing the emergence of stimulus memorability*



Greer Gillies¹, Ben Park¹, Dirk Bernhardt-Walther¹, Jonathan Cant², Keisuke Fukuda³

¹ University of Toronto, ² University of Toronto Scarborough, ³ University of Toronto Mississauga

5:45-6:00 pm – General Discussion

6:00 END OF DAY 1

Wednesday June 2, 2021

F1

PERCEPTION 1

Wednesday June 2, 10:00 am - 11:15 am

Moderator: **Stephen Emrich**, Brock University

10:00 *Comparison of visual working memory crowding across upper and lower visual fields*

Harun Yörük, Benjamin J. Tamber-Rosenau

University of Houston

10:15 *Perceptual similarity judgments predict the precision but not the distribution of errors in working memory*

Ivan Tomic, Paul Bays

University of Cambridge

10:30 *Evidence for trial-to-trial adaptive control in the interaction between working memory and visual processing*

Chunyue Teng, Jacqueline M. Fulvio, Bradley R. Postle

University of Wisconsin - Madison

[10:45](#) *Task-irrelevant statistical ensemble memory of a scene affects current perception*



Yong Min Choi¹, Jieun Cho², Sang Chul Chong²

¹The Ohio State University, ²Yonsei University

11:00-11:15 am – General Discussion



G1

DIFFERENCES 1

Wednesday June 2, 11:30 am - 12:45 pm

Moderator: **Thomas Hinault**, INSERM (French NIH)

11:30 *Inter-hemispheric segregation and integration and individual differences in working memory*

Daniil Vyatkin¹, Ilya Komarov¹, Ilya Zakharov²

¹ MIPT, SberTech, ² Psychological Institute of Russian Academy of Education

11:45 *Age-related differences in working memory: Drift-diffusion model study*

Ilya Zakharov, Timofey Adamovich, Victoria Ismatullina

Psychological Institute of Russian Academy of Education

12:00 *EEG and pupillometry correlates of cognitive overload*

Yuri G. Pavlov¹, Dauren A. Kasanov², Alexander I. Kotyusov², Alexandra I. Kosachenko²

¹ University of Tübingen, ² Ural Federal University

12:15 *Adult age differences in working memory capacity: Spared central storage but deficits in ability to maximize peripheral storage*

Nathaniel R. Greene, Moshe Naveh-Benjamin, Nelson Cowan

University of Missouri

12:30-12:45 pm – General Discussion



BREAK 12:45 - 1:45 pm

H1

PERFORMANCE 1

Wednesday June 2, 1:45 pm - 3:00 pm

Moderator: **Edward Ester**, University of Nevada, Reno

- 1:45 *A novel fully automated visuospatial working memory task in mice*
B. Serrano-Porca¹, R. Marine¹, E. Carillo¹, A. Graell¹, T. Ona-Jordan¹, J. Dalmau²,
 A. Compte¹, J. de la Rocha¹
¹ Institut d'Investigacions Biomediques August Pi i Sunyer, ² Hospital Clinic & ICREA
- 2:00 *Investigating saliency-dependent working memory encoding with ERP components*
Martin Constant¹, Heinrich R. Liesefeld²
¹ LMU München, ² University of Bremen
- 2:15 *What allows an object to escape attribute amnesia?*
Yuri Markov¹, Edyta Sasin², Daryl Fougny²
¹ HSE University, ² New York University Abu Dhabi
- 2:30 *Mechanisms of visual working memory training effects: Capacity and efficiency*
Shuangke Jiang, Myles Jones, Claudia von Bastian
 University of Sheffield
- 2:45-3:00 pm – General Discussion



A2

MAINTENANCE 2

Wednesday June 2, 3:15 pm - 4:30 pm

Moderator: **Brad Postle**, University of Wisconsin - Madison

3:15 *How does working memory store more information at larger set sizes? A composite code model*

Rob Udale¹, Masud Husain², Sanjay Manohar²

¹ University of Sheffield, ² University of Oxford

3:30 *What happens during the retention interval? New insights from correct rejections*

Hyesue Jang, Richard Lewis, Cindy Lustig

University of Michigan

3:45 *How is occipito-parietal connectivity altered to protect visual working memory from distraction?*

Samantha Joubbran¹, Blaire Dube², Holly Lockhart³, Stephen Emrich³, Naseem Al-Aidroos¹

¹ University of Guelph, ² The Ohio State University, ³ Brock University

4:00 *Maintenance of feature binding over long retention intervals*

Sebastian Schneegans, Iham Kasem, Georgina Brown, Paul Bays

University of Cambridge

4:15-4:30 pm – General Discussion



B2

REPRESENTATION 2

Wednesday June 2, 4:45 pm - 6:00 pm

Moderator: **Mike Pratte**, Mississippi State University

[4:45](#) *Serial dependence is memory averaging*



Paul Zerr, Surya Gayet, Stefan Van der Stigchel
Utrecht University

5:00 *Characterizing priority-based rotational remapping of visual working memory representations via demixed principal component analysis*

Quan Wan¹, Jorge A. Menendez², Bradley R. Postle¹

¹ University of Wisconsin - Madison, ² University College London

5:15 *Rotation of neural activity subspaces during working memory vary along dorsolateral and anterior-posterior prefrontal subdivisions*

Shusen Pu¹, Xue-Lian Qi², Wenhao Dang¹, Christos Constantinidis¹

¹ Vanderbilt University, ² Wake Forest University

5:30-5:45 pm – General Discussion

5:45 END OF DAY 2

Thursday June 3, 2021

C2

ATTENTION 2

Thursday June 3, 10:00 am - 11:15 am

Moderator: **Paul Bays**, University of Cambridge

10:00 *Expectations about the number of task-relevant objects gate attentional access to working memory*

Alon Zivony, Martin Eimer
Birkbeck College, University of London

10:15 *Dynamic distraction disrupts control over attentional filtering: Neural and behavioral evidence for the filter disruption theory*

Blaire Dube, Julie D. Golomb
THE Ohio State University

10:30 *No evidence for reward-dependent shift of attention in working memory*

Jorja Shires¹, Mohsen Rakhshan², Alireza Soltani², Marian Berryhill¹
¹ University of Nevada, Reno, ² Dartmouth College

[10:45](#) *Selection in working memory shares the same neural representations as in perception*



Ying Zhou¹, Daryl Fougine¹, Clayton Curtis², Kartik Sreenivasan¹
¹ New York University Abu Dhabi, ² New York University

11:00-11:15 am – General Discussion



D2

CONTROL 2

Thursday June 3, 11:30 am - 12:45 pm

Moderator: **Kyriaki Sidiropoulou**, University of Crete

11:30 *Updating working memory with declarative and procedural information simultaneously: Shared or unique mechanisms?*

Gal Nir-Cohen¹, Tobias Egner², Yoav Kessler¹

¹ Ben-Gurion University of the Negev, ² Duke University

11:45 *Judgments during perceptual comparisons predict distinct forms of memory updating*

Joseph M. Saito¹, Matthew Kolisnyk², Gi-Yeul Bae³, Keisuke Fukuda^{1,2}

¹ University of Toronto, ² University of Toronto Mississauga, ³ Arizona State University

[12:00](#) *Are irrelevant items actively deleted from visual working memory? No evidence from repulsion effects in dual retrocue tasks*



Joshua P. Rhilinger, Nathan S. Rose

University of Notre Dame

12:15 *Functional connectivity during the removal of information from working memory*

Zachary Bretton-Granatoor¹, Hyojeong Kim², Marie Banich², Jarrod Lewis-Peacock¹

¹ University of Texas at Austin, ² University of Colorado, Boulder

12:30-12:45 pm – General Discussion



E2

LONG-TERM MEMORY 2

Thursday June 3, 1:00 pm - 2:15 pm

Moderator: **Keisuke Fukuda**, University of Toronto Mississauga

1:00 *Long-term learning transforms prefrontal cortex selectivity during working memory*
Jacob A. Miller¹, Arielle Tambini², Anastasia Kiyonaga³, Mark D'Esposito¹
 University of California¹ Berkeley, ² Irvine, ³ San Diego

1:15 *Consolidating a lasting memory: The role of creativity in the relationship between working memory and long-term memory*
Kelly Cotton¹, Timothy J. Ricker²
¹ City University of New York, ² University of South Dakota

1:30 *Testing working memory boosts long-term learning of visual arrays*
Philipp Musfeld¹, Alessandra S. Souza², Klaus Oberauer¹
¹ University of Zurich, ² University of Porto

[1:45](#) *Competitive dynamics between working memory and long-term memory processing during sleep*
 **Pin-Chun Chen**¹, Hamid Niknazar¹, William A. Alaynick², Lauren N. Whitehurst³, Sara C. Mednick¹
¹ University of California Irvine, ² Scholar Nexus, LLC, ³ University of Kentucky

2:00-2:15 pm – General Discussion



BREAK 2:15 - 3:15 pm

F2

PERCEPTION 2

Thursday June 3, 3:15 pm - 4:30 pm

Moderator: **Benjamin Tamber-Rosenau**, University of Houston

3:15 *Information compression through between-item similarity: Evidence from the visual domain*

Benjamin Kowialiewski¹, Benoît Lemaire², Sophie Portrat²

¹ University of Zurich, ² Université Grenoble Alpes

3:30 *The precision of representations in visuospatial working memory depends on their location in the visual field*

Siobhan McAteer, Anthony McGregor, Dan Smith

Durham University

3:45 *Memory templates for real-world visual search incorporate contextual expectations*

Surya Gayet, Maëlle Lerebourg, Marius V. Peelen

Donders Institute for Brain, Cognition, and Behavior

[4:00](#) *The target template subserves attentional processes differently during guidance and decision stages of visual search*



Xinger Yu, Joy J. Geng

University of California Davis

4:15-4:30 pm – General Discussion



G2

DIFFERENCES 2

Thursday June 3, 4:45 pm - 6:00 pm

Moderator: **Vanessa Loaiza**, University of Essex

4:45 *Individual differences in vwm capacity predict source memory, but not learning rate*
Chong Zhao, Edward K. Vogel
 University of Chicago

[5:00](#) *Cognitive and affective influences on working memory updating*
 **Meghan Mallya**, Allison Bruning, Jarrod Lewis-Peacock
 University of Texas at Austin

[5:15](#) *Age effects on the refocusing of attention following interruptions are reflected in posterior alpha and mid-frontal theta oscillations*
 **Marlene Rösner**, Bianca Zickerick, Melinda Sabo, Daniel Schneider
 Leibniz Research Centre for Working Environment and Human Factors

5:30 *Joint attention influences working memory - does age matter?*
Samantha Gregory
 Aston University

5:45-6:00 pm – General Discussion

6:00 END OF DAY 3

Friday June 4, 2021

H2

PERFORMANCE 2

Friday June 4, 10:00 am - 11:15 am

Moderator: **Evie Vergauwe**, Université de Genève

10:00 *An improved method for evaluating inverted encoding models*

Paul Scotti, Jiageng Chen, Julie D. Golomb

THE Ohio State University

10:15 *Working memory training after ischemic stroke*

Daniel Landinez¹, David Montoya²

¹ Universidad Catolica Luis Amigo, ² Universidad Pontifica Bolivariana

10:30 *Placebo effects in tests of working memory and attention*

Polina Krivykh, Maria Falikman

National Research University Higher School of Economics

10:45 *The functions of theta activation and alpha inhibition in working memory: Evidence from an EEG study*

Sizhu Han¹, Yixuan Ku²

¹ East China Normal University, ² Sun Yat-sen University

11:00-11:15 am – General Discussion



A3

 MAINTENANCE 3

Friday June 4, 11:30 am - 12:45 pm

Moderator: **Tommy Sprague**, University of California, Santa Barbara

11:30 *Adaptive hierarchical memory: Event structure shapes memory for individual items*
Ziyi Duan, Zhuomian Lin, Xiaowei Ding
 Sun Yat-Sen University

11:45 *Better memory for simple features when embedded in realistic objects*
Yong Hoon Chung¹, Timothy Brady², Viola Störmer¹
¹ Dartmouth College, ² University of California San Diego

12:00 *Shielding working-memory representations from temporally predictable external interference*
Daniela Gresch¹, Sage Boettcher¹, Freek van Ede², Kia Nobre¹
¹ University of Oxford, ² Vrije Universiteit Amsterdam

12:15 *Are retro-cue benefits resource-based?*
Yin-ting Lin, Daryl Fougine
 New York University Abu Dhabi

12:30-12:45 pm – General Discussion

12:45 *Closing remarks*
VWMS 2021 Organizers

1:00  **END OF SYMPOSIUM** 

VWMS Virtual Social

Friday June 4, 2021, 1:30 pm - 4:00 pm

1:30 pm - 2:00 pm **Rap Battle**

Where: Our [VWMS zoom](#)

How: To play, browse to [jackbox.tv](#)

On computer or any device

Room code will be shared in Slack

Why: *Because we must*



2:00 pm - 4:00 pm **Gather.town Speakeasy**



Gather

Join us in a Gather.town speakeasy for some virtual socializing and virtual games! BYOB. 🍷🍹🍸🍺

Link: [VWMS 2021 Gather.town](#)

Password: The password to enter the social will be posted in the Slack announcements.

Video tutorial on using Gather: <https://www.youtube.com/watch?v=89at5EvCEvk>





Overview & History

In 2020, the emergence of the COVID-19 pandemic led to a spate of conference cancellations. This had a disproportionate effect on students and postdocs who rely on these meetings for networking opportunities while they plan for the next stage of their scientific careers.

In response, the Virtual Working Memory Symposium (VWMS) was born! In June of 2020, Eddie Ester and Jarrod Lewis-Peacock organized a virtual meeting to provide a venue for trainees to present their work and network with like-minded scientists on all things working memory. This meeting was an intellectually stimulating, collegial, fun, and enlightening way for all participants to share their recent findings and keep up with peers despite social distancing. The inaugural [VWMS 2020 program](#) is available online.

Here in 2021, the pandemic is still on, though thankfully it is waning in many parts of the world. Therefore, we decided to do VWMS again this year.

When's the symposium?

Tuesday June 1st - Friday June 4th, 2021. Live sessions will be held from 10am-6pm EDT (GMT-04). Presenters have the option of delivering a live talk (preferred) or pre-recording their talk on YouTube to have them air during live sessions.

How does this work?

New in 2021, we've created a dedicated **Slack** workspace to be used in conjunction with **Zoom**. The sessions will be broadcast live via Zoom meetings, with questions delivered via Slack. We decided to use these platforms rather than crowdcast (as originally planned) because (a) most attendees already have some familiarity with the software, (b) it's free, and (c) there's a broader support base. The inclusion of Slack allows for questions and discussions to be sustained beyond the sessions themselves, with the space created in the hopes of encouraging continued discussion and collaboration beyond VWMS itself.

Who's invited?

All are welcome! - undergraduates, grad students, postdocs, faculty, researchers, etc. However, for aforementioned reasons, presentations will be limited to undergraduate, graduate, and postgraduate (postdoc) trainees. In an effort to weaken some long-standing



divisions in the field (e.g., labs who attend VSS vs. CNS vs. OHBM vs. SfN vs. Psychonomics), we welcome contributions from working memory researchers working in any model system, any population (e.g., “typical”, developmental, elderly, or clinical), using any method.

What does this cost?

Nothing. In lieu of a registration fee, please consider a charitable donation to organizations on the frontline of the COVID fight. Some of our favorite charities are listed below, but please feel free to donate to local organizations, foodbanks, or other charities near and dear to your heart.

[Medecins Sans Frontiers](#), [World Health Organization](#), [Oxfam](#), [Feeding America](#), [ASPCA](#), [Black Visions Collective](#), [Reclaim the Block](#), [North Star Health Collective](#),
Bail bond funds in your city (e.g., [Minnesota freedom fund](#))

What's the format?

There will be multiple talk sessions each day, organized in a serial single-stream format. Each hour-long talk session will feature four presenters. Talks are 12 minutes long, followed by a 3-minute Q&A period, and a 15-min general discussion led by an assigned moderator.

Recording policy

All live presentations will be recorded and sessions can be archived and viewed later (more details forthcoming). Recordings can be disabled on presenter request, but there's no way we can prohibit attendees from recording presentations using their own devices.

Diversity and inclusion

We enthusiastically welcome presentations from female scientists and racial/ethnic groups chronically underrepresented in the sciences. We are happy to work with attendees to coordinate satellite sessions that focus on issues that affect these groups.

Code of conduct / Terms of use

We are committed to providing a space that is safe, open, and equitable to all. We have every expectation that presenters and attendees will conduct themselves according to the highest professional and ethical standards. Following the success of neuromatch, we have adopted their terms of use, which can be viewed [here](#). *By registering for the conference, you agree to be bound by these terms.*



Attendee Directory

The [VWMS 2021 Attendee Directory](#) contains a searchable list of VWMS 2021 attendees, their affiliations, and their contact emails if you would like to get in touch with someone. A direct message in the VWMS Slack workspace is also an available form of contact – please ensure that any communication is respectful.