Vencislav Popov

March, 2023

Ven Popov | vencislav.popov@gmail.com | http://venpopov.com

Education

2020   Ph.D., Psychology, Carnegie Mellon University
Dissertation Title: Resource Depletion and Recovery in Human Memory
Adviser: Lynne M. Reder | Committee: John Anderson, Marlene Behrmann, Marc Coutanche
Glushko Dissertation Prize (2021)

2015   B.A., Psychology, New Bulgarian University

Research Experience

02.2023 - current   Senior Scientist in Computational Modeling (tenured)
Department of Psychology, University of Zurich

08.2020 - 01.2023   Postdoctoral Researcher, Cognition Lab, University of Zurich

07.2015 - 06.2020   Doctoral Research, Memory Lab, Carnegie Mellon University

01.2015 - 08.2015   Data Analyst, Bulgarian Addictions Institute

Scholarships and Awards

2023   **Bertelson Early Career Award**
"To an outstanding young scientist for making a significant contribution to European Cognitive Psychology"
European Society for Cognitive Psychology

ESCOP Early Career Publication Award
"For outstanding work that is truly transformational for the field of human learning and memory"
European Society for Cognitive Psychology

2021   **Robert J. Glushko Dissertation Prize ($10,000)**
For an outstanding dissertation in cognitive science
Cognitive Science Society & Robert J. Glushko and Pamela Samuelson Foundation

2020   **McClelland Outstanding Paper Award**
Center for the Neural Basis of Cognition, PA

Bobby Klatzky Graduate Student Publication Award
For outstanding performance in scholarly research and writing
Department of Psychology, Carnegie Mellon University

2019   **Bobby Klatzky Graduate Student Publication Award**
For outstanding performance in scholarly research and writing
Department of Psychology, Carnegie Mellon University

2017   **Cognitive Science Society Travel Award**
For an oustanding student paper
Robert J. Glushko and Pamela Samuelson Foundation

2015 - 2016   **Presidential Fellowship in the Life Sciences**
Richard King Mellon Foundation

Publications

Manuscripts in progress

Popov, V & Oberauer, K. (submitted).How to build an observatory for the mind

Trueblood, J. S., Allison, D., Field, S. M., Fishbach, A., Gaillard, S. D. M., Gigerenzer, G., . . . **Popov, V.**,... Teodorescu, A. (submitted). The Misalignment of Incentives in Academic Publishing and Implications for Journal Reform. Preprint available at https://doi.org/10.31234/osf.io/jrczf

Binz, M., Alaniz, S., Roskies, A., Aczel, B., Bergstrom, C. T., Allen, C., . . . **Popov, V.** . . . Schulz, E. (submitted). How should the advent of large language models affect the practice of science?. Preprint available at https://doi.org/10.31219/osf.io/yr9xb

Popov, V. (under review). Cognitive resources can be intentionally released when processed information becomes irrelevant: Insights from the primacy effect in working memory. Preprint available at https://psyarxiv.com/gct58

Popov, V. (under revision). If God Handed Us the Ground-Truth Theory of Memory, How Would We Recognize It? Preprint available at https://psyarxiv.com/ay5cm/

Ma, S., **Popov, V.** †, & Zhang, Q †. (under revision). A Neural Index Reflecting the Amount of Cognitive Resources Available during Memory Encoding: A Model-based Approach. Preprint available at https://www.biorxiv.org/content/10.1101/2022.08.16.504058v1

Frischkorn, G.* & **Popov, V.* (co-first authors)** (under revision). A tutorial for estimating mixture models for visual working memory tasks in brms: Introducing the Bayesian Measurement Modeling (bmm) package for R. Preprint available at https://psyarxiv.com/umt57

Dames, H., Musfeld, P., **Popov, V.**, Oberauer, K., & Frischkorn, G. (under review). Responsible Research Assessment Should Prioritize Theory Development and Testing Over Ticking Open Science Boxes. Preprint available at https://psyarxiv.com/ad74m/

Journal publications

2023 Dames, H. & **Popov, V.** (in press). When does intent matter for memory? Bridging perspectives with Craik. *Journal of Experimental Psychology: General.* Preprint available at https://psyarxiv.com/gwd4s/

Popov, V.† & <u>Dames, H.</u> (2023). Intent Matters: Resolving the Intentional vs Incidental Learning Paradox in Episodic Long-term Memory. *Journal of Experimental Psychology: General, 152(1), 268–300.* Preprint available at https://psyarxiv.com/jf2en
  - 2023 ESCOP Early Career Pubclication Award

2022 Norton, C. M., Ibinson, J. W., Pcola, S. J., **Popov, V.**, Tremel, J. J., Reder, L. M., ... & Vogt, K. M. (2022). Neutral auditory words immediately followed by painful electric shock may show reduced next-day recollection. *Experimental Brain Research*, 1-13.

2021 **Popov, V.†**, So, M., & Reder, L. (2021). Memory resources recover gradually over time: The effects of word-frequency, presentation rate and list-composition on binding errors and mnemonic precision in source memory. *Journal of Experimental Psychology: Learning, Memory & Cognition*

Vogt, K., Ibinson, J., Smith, C., Citro, A., Norton, C., Karim, H., **Popov, V.**, Mahajan, A., Aizenstein, H., Reder, L. & Fiez, J. (in press). Midazolam and ketamine produce distinct neural changes in memory, pain, and fear networks during pain. *Anesthesiology.*

2020   **Popov, V.†**, & Reder, L. (2020). Greater discrimination difficulty during perceptual learning leads to stronger and more distinct representations. *Psychonomic Bulletin & Review.* Advance Online Publication

Vassileva, J., Psedarska, E., Yankov, G., Bozgunov, K., **Popov, V.** & Vasilev, G. (2020). Validation of the Levenson Self-Report Psychopathy Scale in Bulgarian Substance Dependent Individuals. *Frontiers in Psychology.* 11:1110

Popov, V.† & Reder, L.†(2020). Frequency effects on memory: A resource-limited theory. *Psychological Review. 127*(1), 1-46.

> - *2020 McClelland Outstanding Paper Award, CNBC*
> - *2020 Bobby Klatzky Graduate Student Publication Award, CMU*

2019   **Popov, V.†**, Marevic, I., Rummel, J., & Reder, L. (2019). Forgetting is a feature, not a bug: Intentionally forgetting some things helps us remember others by freeing up working memory resources. *Psychological Science. 30*(9), 1303-1317.

Popov, V.†, Zhang, Q., Koch, G., Halloway, R. & Coutanche, M. (2019). Semantic knowledge influences whether novel episodic associations are represented symmetrically or asymmetrically. *Memory & Cognition. 47*(8), 1567-1581.

2018   **Popov, V.†**, Ostarek, M. & Tenison, C. (2018). Practices and pitfalls in inferring neural representations. *NeuroImage. 174*(1), 340-351

> - *2019 Bobby Klatzky Graduate Student Publication Award, CMU*

Shen, Z.*, **Popov, V.* (co-first authors)**, Delahay, A., & Reder, L. (2018). Item strength affects working memory capacity. *Memory & Cognition. 46*(2), 204-215.

2017   **Popov, V.†**, Hristova, P., & Anders, R. (2017). The Relational Luring Effect: Retrieval of relational information during associative recognition. *Journal of Experimental Psychology: General. 146*(5), 722-745

Manelis, A.*†, **Popov, V.*† (co-first authors)**, Paynter, C., Walsh, M., Wheeler, M., Vogt, K., & Reder, L.† (2017). Cortical networks involved in memory for temporal order. *Journal of Cognitive Neuroscience. 29*(7), 1253-1266.

2016   Reder, L. M., Liu, X. L., Keinath, A., **Popov, V.** (2016). Building knowledge requires bricks, not sand: The critical role of familiar constituents in learning. *Psychonomic Bulletin & Review. 23*(1), 271-277.

2015   **Popov, V.†** & Hristova, P. (2015). Unintentional and efficient relational priming. *Memory & Cognition, 46*(6), 866-878.

Book chapters

2019   **Popov, V.** & Reder, M. (In press). Frequency effects in recognition and recall. To appear In M. Kahana & A. Wagner (Eds.), *Handbook on Human Memory.* Oxford University Press

Refereed full conference papers

2018   Zhang, Q.*, **Popov, V.* (co-first authors)**, Koch, G., Halloway, R. & Coutanche, M. (2018). Fast Memory Integration Facillitated by Schema Consistency. In C. Kalish, M. Rau, J. Zhu, T. Rogers (Eds.), *Proceedings of the 40th Annual Conference of the Cognitive Science Society*. Austin, TX: Cognitive Science Society.

2017   **Popov V.**, Ostarek, M., & Tenison, C. (2017). Inferential Pitfalls in Decoding Neural representations. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 961-966). Austin, TX: CSS.

        Popov V., & Reder, L. (2017). Repetition improves memory by strengthening existing traces: Evidence from paired-associate learning under midazolam. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 2913-2918). Austin, TX: Cognitive Science Society.

        Popov V., & Reder, L. (2017). Target-to-distractor similarity can help visual search performance. In G. Gunzelmann, A. Howes, T. Tenbrink, & E. Davelaar (Eds.), *Proceedings of the 39th Annual Conference of the Cognitive Science Society* (pp. 968-973). Austin, TX: Cognitive Science Society.

2014   **Popov, V.** & Hristova, P. (2014). Automatic analogical reasoning underlies structural priming in comprehension of ambiguous sentences. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 1192-1197). Austin, TX: Cognitive Science Society.

        Popov, V. & Petkov, G. (2014). The level of processing affects the magnitude of induced retrograde amnesia. In P. Bello, M. Guarini, M. McShane, & B. Scassellati (Eds.), *Proceedings of the 36th Annual Conference of the Cognitive Science Society* (pp. 2787-2792). Austin, TX: CSS.

Journal publications (in Bulgarian)

2016   **Popov, V.**, Nedelchev, D., Peneva, E., Psederska, E., Georgieva, V., Vasilev, G., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Buss-Warren Aggression Questionnaire (BWAQ). *Clinical and Consulting Psychology, 4*(30), 37-53.

        Nedelchev, D., **Popov, V.**, Psedarska, E., Bozgunov, K., Vasliev, G., Peneva, E., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Wender Utah Rating Scale (WURS-25) for ADHD. *Clinical and Consulting Psychology, 8*(2), 3-17 (in Bulgarian)

        Popov, V., Psederska, E., Peneva, E., Bozgunov, K., Vasilev, G., Nedelchev, D., & Vassileva, J. (2016). Psychometric Characteristics of the Bulgarian Version of the Toronto Alexithymia Scale (TAS-20). *Psychological Research, 19*(2), 25-42. (in Bulgarian)

2015   **Popov, V.**, Bozgunov, K., Vasilev, G., & Vassileva, J. (2015). Psychometric Characteristics of the Bulgarian Version of Levenson's Self-report Psychopathy Scale. *Bulgarian Journal of Psychology, 1-4*, 253-278. (in Bulgarian)

Open-source software

bmm   Lead author. An R package for Bayesian Measurement Modeling of Visual Working Memory

Presentations

Invited talks

2023 One World Cognitive Psychology Seminar Series, Psychonomic Society, online, Sep 2023
If God Handed Us the Ground-Truth Theory of Memory, How Would We Recognize It?

2022 Cognitive Brown Bag Series, Michigan State University, online, November 2022
Resource Depletion and Recovery in Human Memory

Working Memory Development Lab Seminar, University of Fribourg, April 2022
Frequency effects on memory: A resource-limited theory

2021 Context and Episodic Memory Symposium, University of Melbourne, online, Dec 2021
Intent Matters: Resolving the Intentional vs Incidental Learning Paradox in Episodic Long-term Memory

Gluschko Dissertation Award Symposium, Cognitive Science Society, online, July 2021
Frequency effects on memory: A resource-limited theory

Seminar on Memory and Analogy, New Bulgarian University, online, May 2021
Intent Matters: Resolving the Intentional vs Incidental Learning Paradox in Episodic Long-term Memory

2019 Cognitive Seminar, Ohio State University, Columbus, OH, April 2019
Semantic relations play a crucial role in memory, language comprehension and analogical reasoning

2016 Workshop on Memory and Skill, Duke University, Durham, North Carolina, April 2016.
Not knowing what we know: A call for a theory-neutral database for empirical results in psychology.

Departmental talks

2019 Visual Cognition Meeting (VisCog), Carnegie Mellon University, Pittsburgh, Jan 2019.
Practices and pitfalls in inferring neural representations.

2017 CNBC Brain Bag series, Center for the Neural Basis of Cognition, Pittsburgh, Nov 2017.
Inferential Pitfalls in Decoding Neural Representations.

Pecerption, Action and Learning (PAL) series, Carnegie Mellon University, Pittsburgh, Feb 2017.
The Mortar of Cognition: Semantic relations play a crucial role in memory, language comprehension and analogical reasoning.

Conference talks

2023 If God Handed Us the Ground-Truth Theory of Memory, How Would We Recognize It? *Oral presentation at the 23rd Annual Summer Interdisciplinary Conference (ASIC 2023).* Kranjska Gora, Slovenia

2021 Uncertainty ratings can improve the estimation of memory precision by several orders of magnitude. *Oral presentation at the Psychonomic Society 62nd Annual Meeting.* Virtual conference.

2019 Word frequency affects binding probability not memory precision. *Oral presentation at the 41st Annual Conference of the Cognitive Science Society.* Montreal, CA.

The effect of semantic relatedness on associative symmetry in memory. *Oral presentation at the 41st Annual Conference of the Cognitive Science Society.* Montreal, CA.

Frequency effects on memory: A resource-limited theory. *Oral presentation at the 18th Annual Summer Interdisciplinary Conference (ASIC 2019).* Seefeld, Austria

2017   Inferential Pitfalls in Decoding Neural Representations. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.

The Relational Luring Effect: False Recognition via Relational Similarity. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.

Target-to-distractor similarity can help visual search performance. *Oral presentation at the 39th Annual Conference of the Cognitive Science Society*. London, UK.

The Relational Luring Effect: Retrieval of relational information during associative recognition. *Oral presentation at the 16th Annual Summer Interdisciplinary Conference (ASIC 2017)*. Interlaken, Switzerland.

2015   Unintentional relational priming. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Kazanlak, Bulgaria

2014   Priming of relations: Unintended, unconscious and efficient. *Oral presentation during the European Campus of Excellence Summer School in Memory and Mind: Perspectives from Philosophy and Neuroscience*. Germany, Bochum: Ruhr University Bochum

Automatic analogical reasoning underlies structural priming in comprehension of ambiguous sentences. *Oral presentation at the 36th Annual Conference of the Cognitive Science Society*. Quebec City, Canada.

Retrograde amnesia as a function of the level of processing. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Belmeken, Bulgaria: NBU

Automatic analogies in language comprehension. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Belmeken, Bulgaria: NBU

2013   Experiencing failure increases problem-solving time in current performance. *Oral presentation at the Annual Conference of the Department of Cognitive Science and Psychology*. Ribaritza, Bulgaria

Teaching experience

Mentorship

Berit Barthelmes, UZH, Master's thesis supervisor
Huichao Ji, UZH, Master's internship (now a PhD student at Yale University)
Lorin Schöni, UZH, Master's internship (now a PhD student at ETH Zurich)

Graduate courses at the University of Zürich

How do we measure cognition? (co-teaching with Hannah Dames)
(overall course satisfaction 5.6/6.0; satisfaction with the instructor 5.9/6.0)
Fall 2022

Generating and Testing Explanations of Brain and Behavior: The Good, the Bad, and the Ugly
(overall course satisfaction 5.0/6.0; satisfaction with the instructor 5.5/6.0)
Spring 2022, Spring 2023

Data Science for Psychologists (online)
(overall course satisfaction 4.0/6.0; satisfaction with the instructor 5.0/6.0)
Spring 2021

Teaching assistant

2019	Cognitive Research Methods (Instructor: Erik Thiessen)
2018	Introduction to Psychology (Instructor: Danniel Oppenheimer)
	Data Science for Psychology & Neuroscience (Instructor: Timothy Verstynen)
2017	Introduction to Parallel Distributed Processing (Instructor: David Plaut)

Guest lectures

2019	Computational modelling of memory (Memory. Instructor: Lynne Reder)
2018	Approaches to studying memory (Memory. Instructor: Lynne Reder)
2018	Introduction to classifiers (Data Science for Psychology & Neuroscience. Instructor: Timothy Verstynen)
2015	Working Memory (Memory. Instructor: Penka Hristova)
2014	Working Memory (Memory and meaning. Instructor: Encho Gerganov)

Non-academic teaching

2022	Alpine Skill-transfer Workshops Coordinator (Academic Alpine Club of Zurich)
2019	Mountaineering School Director (Explorer's Club of Pittsburgh)
2019	Rock Climbing School Instructor (Explorer's Club of Pittsburgh)

Editorial and service roles

| 2021 - current | Consulting Editor, *Memory and Cognition* |
| 2021 - current | Symposium co-organizer, *Distributed Working Memory Series (DWMS; https://bit.ly/3F27hrS)* |

Ad hoc reviewer

- Proceedings of the National Academy of Sciences
- NeuroImage
- Psychological Review
- Psychonomic Bulletin & Review
- Memory and Cognition
- Journal of Experimental Psychology: General
- Journal of Experimental Psychology: Learning, Memory & Cognition
- Cognitive Psychology
- Quarterly Journal of Experimental Psychology
- Memory
- Attention, Perception & Psychophysics
- Developmental Psychology
- Cognition
- PLOS One
- Behavior Research Methods
- Cognitive Science
- Cognitive Processing
- Brain & Cognition
- Experimental Psychology
- Communications Biology
- Scientific Reports
- Neural Computation
- Journal of Psycholinguistic Research
- Cognitive Science Society Conference