

Ivan Grahek

Curriculum Vitae

Department of Cognitive, Linguistic,
and Psychological Sciences
Brown University
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Education and training

- 2020 - present Postdoctoral Research Associate.
Advisor: Amitai Shenhav
- 2015 - 2019 PhD in Psychology, Ghent University
Advisors: Ernst Koster and Ruth Krebs
Thesis: *Motivation and Cognitive Control in Depression*
- 2014 - 2015 M.A. in Psychology, University of Belgrade
- 2010 - 2014 B.A. in Psychology, University of Belgrade

Grants and awards

- 2022 Carney Institute for Brain Science and the Department of Cognitive, Psychological, and Linguistic Sciences, Brown University for the organization of the advanced training program entitled “Mental Effort: One Construct, Many Faces?”. **(\$5,000)**.
- 2022 William K. and Katherine W. Estes Fund for the advanced training program entitled “Mental Effort: One Construct, Many Faces?”. Association for Psychological Science and the Psychonomic Society. **(\$13,850)**.
- 2021 William K. and Katherine W. Estes Fund for the advanced training program entitled “Mental Effort: One Construct, Many Faces?”. Association for Psychological Science and the Psychonomic Society. **(\$4,080)**.
- 2018 Ghent University – Funding for organizing a graduate-level three-day course entitled: “Introduction to Bayesian Statistical Modelling” 13th-15th of June 2018. **(1,900€)**
- 2018 Research Foundation - Flanders (FWO) – travel grant for the stay at the lab of Dr. Amitai Shenhav at Brown University, Providence, RI, USA, 1st of September – 31st of December 2018. **(6,732€)**
- 2018 Research Foundation - Flanders (FWO) – travel grant for the participation at the Annual conference of the Society for the Improvement of Psychological Science, Grand Rapids, Michigan, USA, 24-26 June, 2018. **(1,000€)**
- 2017 Research Foundation - Flanders (FWO) – travel grant for the participation at the Anxiety and Depression Conference, San Francisco, California, USA, 6-9 April, 2017. **(1,000€)**

- 2015 - 2019 BOF Special Research Fund (Ghent University) – grant for the PhD project “Cognitive, emotional, and motivational processes in relation to depressive symptoms” with Dr. Ernst Koster and Dr. Ruth Krebs as supervisors. (106,880€)
- 2015 Borislav Lorenc grant (University of Belgrade) for young researchers in cognitive sciences – used for a study visit to PANLAB at Department of Experimental Clinical and Health Psychology, Ghent University (1,500€)
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Publications

In preparation

Grahek, I., Braem, S., Kukkonen, N., Koster, E. H. W., & Krebs, R. M. Expecting cognitive effort: The influence of difficulty cues on cognitive control. Manuscript in preparation.

Grahek., I., Leng, X., Prater Fahey, M., Yee, D., & Shenhav, A. Empirical and Computational Evidence for Reconfiguration Costs During Within-Task Adjustments in Cognitive Control. Manuscript in preparation.

*Baydar, S., ***Grahek., I.**, Prater Fahey, M., & Shenhav, A. The role of outcome controllability in the influence of penalties on cognitive control. Manuscript in preparation.

***I.G. co-first author**

Peer-reviewed journal articles

Grahek, I., Frömer, R., Prater Fahey, M., & Shenhav, A. (2022). Learning when effort matters: neural dynamics underlying updating and adaptation to changes in performance efficacy. *Cerebral Cortex*

*Hoofs, V., ***Grahek, I.**, Boehler, C. N., & Krebs, R. M. (2021). Guiding spatial attention by multimodal reward cues. *Attention, Perception, & Psychophysics*, 1-16.

***I.G. co-first author**

Grahek, I., Schettino, A., Koster, E. H. W., & Andersen, S. K. (2021). Dynamic interplay between reward and voluntary attention determines stimulus processing in visual cortex. *Journal of Cognitive Neuroscience*. 33(11), 2357–2371.

Shenhav, A., Prater Fahey, M., & **Grahek, I.** (2021). Decomposing the motivation to exert mental effort. *Current Directions in Psychological Science*. 30(4), 307-314.

Grahek, I., Schaller, M., & Tackett, J. L. (2020). Anatomy of a Psychological Theory: Integrating Construct Validation and Computational Modeling Methods to Advance Theorizing. *Perspectives on Psychological Science*. 16(4), 803-815.

Grahek, I., Musslick, S., & Shenhav, A. (2020). A Computational Perspective on the Roles of Affect in Cognitive Control. *International Journal of Psychophysiology*. 151, 25-34.

Grahek, I., Shenhav, A., Musslick, S., Krebs, R. M., & Koster, E. H. (2019). Motivation and cognitive control in depression. *Neuroscience & Biobehavioral Reviews*, 102, 371-381.

Klein, R. A., Vianello, [...], **Grahek, I.**, [...], & Nosek, B. A. (2018). Many labs 2: Investigating variation in replicability across samples and settings. *Advances in Methods and Practices in Psychological Science*, 1(4), 443-490.

Marchetti, I., Shumake, J., **Grahek, I.**, & Koster, E. H. (2018). Temperamental factors in remitted depression: The role of effortful control and attentional mechanisms. *Journal of Affective Disorders*. 235, 499-505.

Grahek, I., Everaert, J., Krebs, R. M., & Koster, E. H. (2018). Cognitive control in depression: Toward clinical models informed by cognitive neuroscience. *Clinical Psychological Science*, 6(4), 464-480.

*Everaert, J., ***Grahek, I.**, Duyck, W., Van den Bergh, N., Buelens, J. & Koster, E. (2017). Mapping the interplay among cognitive biases, emotion regulation, and depressive symptoms. *Cognition & Emotion*. 31(4), 726-735.

***I.G. co-first author**

*Everaert, J., ***Grahek, I.**, & Koster, E. (2017). Individual differences in cognitive control over emotional material modulate cognitive biases linked to depressive symptoms. *Cognition & Emotion*. 31(4), 736-746.

***I.G. co-first author**

Orlić, A., **Grahek, I.**, & Radović, T. (2014). The influence of valence and arousal on reasoning: Affective priming in the semantic verification task. *Psihologija*, 47(2), 201-213.

Peer-reviewed conference proceedings

Grahek, I., Leng, X., Prater Fahey, M., Yee, D., & Shenhav, A. (2022). Empirical and Computational Evidence for Reconfiguration Costs During Within-Task Adjustments in Cognitive Control. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Toronto, CA.

Huang, H., **Grahek, I.**, Bustamante, L., Daw, N., Caplin, A., & Musslick, S. (2022). Leveraging psychometrics of rational inattention to estimate individual differences in the capacity for cognitive control. In *Proceedings of the 44th Annual Meeting of the Cognitive Science Society*. Toronto, CA.

Invited talks

March, 2022	Princeton Neuroscience Institute (P6 meeting) <i>Title: "Empirical and Computational Evidence for Reconfiguration Costs During Within-Task Adjustments in Cognitive Control"</i>
July, 2020	Mental Effort: One Construct, Many Faces? Workshop at the 42 nd Annual Meeting of the Cognitive Science Society (virtual meeting) <i>Title: "Individual differences in the allocation of mental effort"</i>
November, 2020	Transcontinental Computational Psychiatry Workgroup (TCPW). <i>Title: "Cognitive control impairments in depression"</i>
November, 2019	Seminars series of the Center for Brain and Cognition, Pompeu Fabra University, Barcelona, Spain. <i>Title: "The role of motivation in healthy and disordered cognitive control"</i>
September, 2019	Expert meeting: "Innovative interventions in depression combining cognitive interventions and noninvasive brain stimulation", Ghent University <i>Title: "Motivation and cognitive control in depression"</i>

Conference presentations (talks)

Grahek, I., Leng, X., Prater Fahey, M., Yee, D., & Shenhav, A. (2022). Empirical and Computational Evidence for Reconfiguration Costs During Within-Task Adjustments in Cognitive Control. 44th Annual Meeting of the Cognitive Science Society. Toronto, July 28-30, 2022.

Grahek, I., Musslick, S., & Shenhav, A. (2019). The Role of Affect in Cognitive Control: A Computational Approach and its Relevance for Depression. Talk presented at the Annual Conference of the International Society for Research on Emotion, Amsterdam, July 10-13, 2019.

Grahek, I. (2019). The Role of Theory Strength in the Replicability Crisis. Talk presented at International Convention of Psychological Science (ICPS), Paris, March 7-9, 2019.

Grahek, I. (2018). The Day After Methods are Fixed: Pervasive Problems of Weak Theories. Talk presented at the Annual conference of the Society for the Improvement of Psychological Science, Grand Rapids, Michigan, USA, 24-26 June, 2018.

Grahek, I., Everaert, J., & Koster, E.H.W. (2017). Cognitive Control Over Emotional Material Modulates Cognitive Biases Linked to Depressive Symptoms. Talk presented at the Anxiety and Depression Conference, San Francisco, California, USA, 6-9 April, 2017.

Grahek, I., Everaert, J., Duyck, W., Van den Bergh, N., Buelens, J. & Koster, E. (2016). Mapping the interplay among cognitive biases, emotion regulation, and depressive symptoms. Talk presented at the CERE Emotion Conference. Leiden, 6-7 June 2016.

Petrović, S. & Grahek, I. (2015). Uticaj afektivne valence i pobuđenosti na proces suđenja [The influence of valence and arousal on judgment]. XXI Empirical studies in psychology. Belgrade, 27-29 March, 2015.

Grahek, I., Radović, T., Orlić, A., & Purić, D. (2014). The influence of emotional context on the shifting function: Affective priming in the task-switching paradigm. Rijeka days of experimental psychology. Rijeka: 25-29 September, 2014.

Grahek, I., Radović, T. & Orlić, A. (2013). Uticaj specifičnih emocija na zadatak semantičke verifikacije [Influence of specific emotions on the semantic verification task]. Current Trends in Psychology. Novi Sad, 11-13 October, 2013.

Conference presentations (posters)

Grahek, I., Leng, X., Prater Fahey, M., Yee, D., & Shenhav, A. (2022). Empirical and Computational Evidence for Reconfiguration Costs During Within-Task Adjustments in Cognitive Control. CNS 2022. San Francisco, 23-26 April, 2022.

Prater Fahey, M., **Grahek, I.**, Dean Wolf, C.K., Placido, D., Orwicz, A., Amso, D., & Shenhav, A. (2020). When is my effort worthwhile? Learned efficacy influences how adolescents allocate cognitive control. Flux Congress 2022, Virtual, 9-12 September, 2020.

Grahek, I., Frömer, R., & Shenhav, A. (2019). Learning whether control matters: neural dynamics underlying the updating of expectations and control allocation in response to changes in performance efficacy. 7th International Symposium on Motivational and Cognitive Control (MCC 2019). Berlin, 16-18 September, 2019.

Grahek, I., Everaert, J., Krebs, R. & Koster, E. (2016). Influence of rewards on depression-related attentional biases. 6th Motivation and Cognitive Control (MCC) Symposium. St Andrews, 24-26 August, 2016.

Grahek, I., Everaert, J., Krebs, R. & Koster, E. (2016). Interactive influences of emotion and motivation on attention in relation to depressive symptom levels. U4 Workshop: “Emotional, attentional and motivational influences on visual perception explored using state of the art neurophysiology and neuroimaging”. Gent, 26-27 May, 2016.

Teaching and mentoring

Teaching

- 2018 Introduction to Bayesian Statistical Modelling (3-day workshop). Ghent University, Belgium, Ghent, 13-15 June, 2018. Instructors: Paul-Christian Bürkner, **Ivan Grahek**, Ladislav Nalborczyk, and Antonio Schettino.
- 2011-2015 Teaching assistant for undergraduate courses in Cognition and Perception at the Department of Psychology, University of Belgrade

Mentoring

Undergraduate thesis students

- 2021-22 Selin Baydar, Brown University, “Does your effort matter for avoiding penalties? The role of performance efficacy and penalty in cognitive control allocation”
*Awarded Cognitive Neuroscience premium for research excellence

Undergraduate research assistants

- 2022-present Yihuan Dong, Brown University.
2020-2022 Selin Baydar, Brown University.
2021-2022 Maja Nieweglowska, Brown University.
2020-2021 Peyton Strong, Brown University.

Scientific Service

Organization of conferences, workshops, and symposia

2023 Annual conference of the Society for Affective Science (forthcoming).

Musslick, S., Wirzberger, M., **Grahek, I.**, Bustamante, L. (forthcoming). Mental Effort: One Construct, Many Faces? An independent event supported by the APS & Psychonomic Society W. Estes Fund, The Carney Institute for Brain Science, and the Department of Cognitive, Linguistic, and Psychological Sciences, Brown University. Providence, RI, USA. November 21-22. <https://sites.google.com/view/mental-effort/general-information?authuser=0>

Musslick, S., Wirzberger, M., **Grahek, I.**, Bustamante, L. (2021). Mental Effort: One Construct, Many Faces? An independent event supported by the APS & Psychonomic Society W. Estes Fund, September 9-10 (online event). <https://sites.google.com/view/mental-effort/general-information?authuser=0>

Musslick, S., Wirzberger, M., **Grahek, I.**, Bustamante, L., Shenhav, A., Cohen, J. (2020). Mental Effort: One Construct, Many Faces? Annual Conference of the Cognitive Science Society, July 29th (online event). <https://sites.google.com/view/mental-effort/general-information?authuser=0>

Van Geert, E. & **Grahek, I.** (Chairs), The importance of theory and its implications for the replication crisis in psychological research. Symposium conducted at the Annual meeting of the Belgian Association for Psychological Sciences (BAPS), Liege, Belgium, May 14-15, 2019.

Grahek, I. & Tackett, J. L. (Chairs), The Anatomy of a Psychological Theory. Symposium conducted at the International Convention of Psychological Science (ICPS), Paris, France, March 7-9, 2019.

Introduction to Bayesian Statistical Modelling (3-day workshop). Ghent University, Belgium, Ghent, 13-15 June, 2018.

Reviewer – Funding Agencies

Swiss National Science Foundation

Reviewer – Conferences:

Society for Affective Science

Reviewer - Journals:

Acta Psychologica – Brain Imaging and Behavior – British Journal of Psychology – Clinical Psychology Review – Clinical Psychological Science – Cognition & Emotion – Cognitive, Affective, & Behavioral Neuroscience – Current Opinion in Behavioral Sciences – eNeuro – Journal of Abnormal Psychology – Journal of Experimental Psychology: Learning, Memory, & Cognition - Perspectives on Psychological Science

Languages

Serbo-Croatian – Native; English – Proficient; French – Intermediate
