

Ivan Grahek

Postdoctoral Research Associate
Department of Cognitive, Linguistic, and Psychological Sciences
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Education

- 2015 – 2019 Ph.D., Ghent University, Psychology
Dissertation: "Motivation and Cognitive Control in Depression"
- 2014 – 2015 M.A., University of Belgrade, Psychology.
Thesis: "Cognitive Control and Attention in the Processing of Affective Information"
- 2010 – 2014 B.A., University of Belgrade, Psychology

Professional experience

- 2020 – present Postdoc at Brown University, Department of Cognitive, Linguistic, and Psychological Sciences in the lab of Dr. Amitai Shenhav.
- 2018 Visiting PhD student at Brown University, Department of Cognitive, Linguistic, and Psychological Sciences in the lab of Dr. Amitai Shenhav.
- 2015 – 2019 PhD student at Ghent University, Department of Experimental Clinical and Health Psychology.
- 2014 – 2015 Internship at Ghent University, Department of Experimental Clinical and Health Psychology in the Psychopathology and Affective Neuroscience Lab. Working under supervision of Dr. Ernst Koster and Dr. Jonas Everaert.
- 2011 – 2015 Research assistant in Laboratory for Experimental Psychology, Faculty of Philosophy, University of Belgrade. Working as a student teaching assistant on two undergraduate courses (Perception and Cognitive Psychology).

Grants

- 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. **(approximately 1000€)**
- 2017 Research Foundation - Flanders (FWO) – travel grant for the participation at the Anxiety and Depression Conference, San Francisco, California, USA, 6-9 April, 2017. **(approximately 1000€)**
- 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. PhD salary **(91.200€; 4 years) + 14.880€ research budget**
- 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€)**

Publications

In preparation

Grahek, I., Braem, S., Koster, E. H. W., & Krebs, R. M. (2020). Expecting cognitive effort: The influence of difficulty cues on cognitive control. Manuscript in preparation.

Submitted (preprint links provided when available)

Grahek, I., Frömer, R., & Shenhav, A. Learning if control matters: Learning when effort matters: Neural dynamics underlying updating and adaptation to changes in performance efficacy. Manuscript submitted for publication. <https://www.biorxiv.org/content/10.1101/2020.10.09.333310v2>

Grahek, I., Schettino, A., Koster, E. H. W., & Andersen, S. K. Dynamic interplay between reward and voluntary attention determines stimulus processing in visual cortex. Manuscript submitted for publication.

Shenhav, A., Prater Fahey, M., & **Grahek, I.** (2020). Deconstructing the motivation to exert mental effort: A model-based approach. Manuscript submitted for publication.

Published

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

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

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 sample and setting. *Advances in Methods and Practices in Psychological Science*, *1*, 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*.

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*
*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*
*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).

Invited talks

October, 2020 The Otto lab meeting, McGill University, Montreal, Canada.
Title: "Learning when effort matters: The role of performance efficacy in cognitive control"

November, 2019 Seminars series of the Center for Brain and Cognition, Pompeu Fabra University, Barcelona, Spain.
Title: "The role of motivation in healthy and disordered cognitive control"

September, 2019 Expert meeting: “Innovative interventions in depression combining cognitive interventions and noninvasive brain stimulation”, Ghent University
Title: “Motivation and cognitive control in depression”

Organized symposia

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.

Organized workshops

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>

Conference presentations (oral)

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., 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.

Attended workshops, seminars, and meetings

7th Motivation and Cognitive Control (MCC) Symposium. Berlin, Germany, 16th-18th of September, 2019.

Cognitive control and performance monitoring meeting. Oostduinkerke, Belgium, 14-15th of June, 2019.

Model-based neuroscience summer school. Amsterdam, The Netherlands, 31st of July – 4th of August, 2018.

EPOS Attention workshop. Amsterdam, The Netherlands, 24-25 November, 2016.

6th Motivation and Cognitive Control (MCC) Symposium. St Andrews, Scotland, 24th-26th of August, 2016.

U4 Workshop: “Emotional, attentional and motivational influences on visual perception explored using state of the art neurophysiology and neuroimaging”. Gent, Belgium, 26-27 May, 2016.

Teaching

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.

Ad Hoc Reviewer for:

Acta Psychologica – Brain Imaging and Behavior – British Journal of Psychology – Comprehensive Psychiatry – Current Opinion in Behavioral Sciences – Journal of Abnormal Psychology – Perspectives on Psychological Science

Languages

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

Personal skills and competences

Programming skills:

R - data preparation, Bayesian & frequentist statistics

Matlab – experiment development (PsychToolbox & Cogent), data preparation, EEG data analysis – (eeglab and custom scripts), and computational modeling.

Python – data preparation and experiment development (OpenSesame & PsychoPy)

Operating systems:

Linux and Windows

Research interests

Cognitive neuroscience, Cognitive control, Attention, Motivation, Depression.