

Jessica Loke

Postbus 1591 ■ 1001NK Amsterdam ■ The Netherlands

jessica_2020@hotmail.com

Education and employment

- 2018 - Feb 2024 **Doctoral researcher**, Uni. of Amsterdam
(estimated) My current projects are focused on modelling neuroimaging data using deep neural networks (DNN). The modelling approach is driven by two major purposes - to describe *how* brains processes visual information, and to *interpret* DNN's activations.
Supervised by Dr. H. Steven Scholte and Dr. Natalie Cappaert
- 2017 - 2018 **Research analyst**, Neurensics, NL
I designed and executed experiments predicting customer engagement and behaviors and also developed protocols for measurements using mobile EEG devices, ECG, fNIRS, mobile eye trackers.
- 2015 - 2017 **Research master student**, Uni. of Amsterdam (**cum laude**)
On top of the required courses, I completed two research projects (of 6 and 8 months each). In the first project, I investigated the influence of transcranial direct current stimulation on visual working memory. In the second project, I investigated the influence of task difficulty in object recognition with human subjects and deep neural networks.
- 2012 - 2015 **International student advisor**, Uni. of Nebraska-Lincoln, USA
This was a new (full-time) position created to assist the transition, integration and development of international students. I designed and developed an Intercultural Program employing 12 staff members to mentor new students and host cultural themed events.
- 2012 - 2015 **Research associate**, Uni. of Nebraska Public Policy Center, USA
While holding a full-time position, I worked on a research project studying distrust, civil disobedience and hacktivism where I reviewed literature, and conducted qualitative and quantitative analysis, culminating in a presentation to municipal officials.
- 2009 - 2012 **BA double majored in psychology and classics and religious**

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**studies (honors and highest distinction, GPA 3.9/4.0), Uni. of
Nebraska-Lincoln, USA**

Awards and Scholarships

2023	VISTA Distinguished Postdoc Fellowship (€140000 awarded for research)
2015 & 2016	Amsterdam Merit Scholarship (€16000 awarded to one student per cohort)
2012	Superior Scholar Award (Top 3% of graduating class)
2012	Jensen Nominee Award (significant academic contributions)
2011	Officer of the Year from Uni. of Nebraska-Lincoln Student Involvement

Publications

Seijdel N*, **Loke J***, van de Klundert R, van der Meer M, Quispel E, van Gaal S, de Haan EHF, Scholte, HS. (2021). On the necessity of recurrent processing during object recognition: it depends on the need for scene segmentation. *Journal of Neuroscience* 41(29), 6281-6289.

Loke J*, Seijdel, N*, van de Klundert R, van der Meer M, Quispel E, Cappaert, N, Scholte, HS. (2022). A critical test of deep convolutional neural networks' ability to capture recurrent processing in the brain using visual masking. *Journal of Cognitive Neuroscience* 34(12): 2390-2405.

Loke J*, Seijdel, N*, Snoek, L.K.A, Söerensen, van de Klundert R, van der Meer M, Quispel E, Cappaert, N, Scholte HS. (in press). Human visual cortex and deep convolutional neural network care deeply about object background. *Journal of Cognitive Neuroscience*

Loke J, Brands, A, Cappaert, N, Scholte HS. (in prep). Deep convolutional neural networks' do not explain object features in EEG signal; but low and mid-level visual features.

Loke J, Groen, I, Cappaert, N, Scholte HS. (in prep). Human visual cortex and deep convolutional neural networks share a bias for textures.

* indicates shared first author papers

Conference presentations and posters

Loke J*, Seijdel, Scholte, HS. (2023). Deep neural networks as test subjects for psychological experiments. *International Convention of Psychological Science*, Brussels.

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Loke J*, Seijdel, N, van de Klundert R, van der Meer M, Quispel E, Cappaert, N, Scholte, HS. (2022). A critical test of deep convolutional neural networks' ability to capture recurrent processing in the brain using visual masking. *Visual Sciences Society*, St. Pete Beach.

Loke J*, Seijdel, N, van de Klundert R, van der Meer M, Quispel E, Cappaert, N, Scholte, HS. (2021). A critical test of deep convolutional neural networks' ability to capture recurrent processing in the brain using visual masking. *Dutch Society for Psychonomics Meeting*, Egmond aan Zee.

Loke J, Seijdel N, Scholte, HS. (2018). Decoding the order of visual operations. *European Conference on Visual Perception*, Trieste.

Loke J, Seijdel N, Scholte, HS. (2017). The order of visual operations with masked and unmasked natural images. *Dutch Society for Psychonomics meeting*, Egmond aan Zee.

Loke J, Scholte, HS. (2017). Dog or poodle: recurrent processing in object categorization. *International Conference for Cognitive Neuroscience (ICON)*, Amsterdam, The Netherlands.

Teaching and supervision

2019 - 2023 **Lecturer & coordinator** for two research master courses and one bachelor course

- Neuroimaging: BOLD-MRI
- Cognitive AI and Neuroimaging
- Building Brains with AI

2018 - 2023 **Co-supervisor** for (12) bachelor/master thesis projects of Ron van de Klundert, Matthew van der Meer, Eva Quispel, Alida Graat, Toon Renssen, Nina Vreugdenhil, Emilija Kazakaitytė, Merel Florian, Hannah van Houten, Bente van Katwijk, Meike Tas, Eshine Wong, Jenny Dewhurst, Jesse Fontaine, Gustaw Opielka, Kim Hoekstra, Marianne Klimczak.

2021 **Lead teaching assistant** for Neuromatch Academy online summer school in computational neuroscience

2019 **Lecturer & content creator** for the summer school of Experimental Psychological Graduate School on deep learning in psychology

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Organizational experience

- Member of the PhD Committee of Psychology at the Uni. of Amsterdam 2021-2023
- Member of the Jong UvA Committee at the Uni. of Amsterdam 2022
- Co-organizer of the Experimental Psychology Research School (EPOS) 2019 autumn school on Deep Learning in Psychology