

# CURRICULUM VITAE

## Personal data

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Software/code: <https://github.com/lukassnoek>

## About me

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I'm a PhD-student at the University of Amsterdam and I'm passionate about using **neuroimaging** (mainly MRI) to answer questions about the human brain functioning and, in particular, **how people perceive and process emotional stimuli**. Next to doing research, I enjoy **teaching** (I developed and am currently teaching two MSc. courses on neuroimaging) and developing **open-source software** to make neuroscience more accessible, transparent, and reproducible (see my [Github page](#) for my software projects!).

## Research projects

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In my PhD project, I work on a variety of projects that involve modelling psychological constructs and processes – ranging from gender and intelligence to emotion experience and empathy – on the basis of neuroimaging data using state-of-the-art analyses and methods. Below, a selection of these projects are outlined in which I fully or partly (e.g. only the data analysis) involved:

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|--------------|--|
| 2018-present | <b>Computational (neural) models of facial expression perception</b><br>Topic: Investigating what information people use to infer emotion from facial expressions using computational modelling of behavior and UHF (7T) fMRI data.<br>Status: Analysis<br>Collab.: Dr. Steven Scholte, Dr. Suzanne Oosterwijk, prof. dr. Agneta Fischer, Prof. dr. Philippe Schyns and dr. Rachael Jack (University of Glasgow) |
| 2016-2019    | <b>Confounds in MVPA</b><br>Topic: Investigating the influence and 'treatment' of confounding factors in between-subject multivoxel pattern analysis (MVPA).<br>Status: Published in <i>Neuroimage</i>   |
| 2016-present | <b>The brain basis of morbid curiosity</b><br>Topic: Analyzing and characterizing the brain basis of "morbid curiosity" (curiosity for negative information, like violence, mutilation, and harm) using task-based fMRI  |

Status: In review  
Collab.: Dr. Suzanne Oosterwijk

2014-2017

### **Shared States**

Topic: Investigating the neural overlap between emotion experience and emotion understanding.

Status: Published in *SCAN*

Code: [github.com/lukassnoek/SharedStates](https://github.com/lukassnoek/SharedStates)

Collab.: Dr. Suzanne Oosterwijk & Dr. Steven Scholte

## **Teaching**

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2016-present

### **Guest lectures** – bachelor & (research) master Psychology (UvA)

Topics: computational (cognitive) neuroscience, artificial intelligence (artificial neural networks), neuroimaging, statistics, Python programming.

2016-present

### **Supervision research projects/theses master students**

Supervision of research projects (Jurriaan te Koppele, Lara Engelbert, Cas Smulders, Max Mittenbuhler, Michelle Kuhn, Mona Zimmermann), literature theses (Andreas Wolters), and research master theses (Steven Miletic, Jolien Schuurmans, Hidde Pielage, Sjoerd Evelo, Maite van der Miesen).

2016-present

### **BKO (Basis Kwalificatie Onderwijs) track**

I am on track to get my higher education 'teaching certificate' (BKO) during my PhD, which will be based on my teaching experience and qualities w.r.t. the two neuroimaging courses.

2017-present

### **Neuroimaging: Pattern Analysis** – Research Master Psychology (UvA)

Currently developing this course to provide students with knowledge and practical skills to understand, implement, and interpret state-of-the-art 'MVPA' analyses.

2013-present

### **Neuroimaging: BOLD-MRI** – Research Master Psychology (UvA)

Responsible for supervising the labs, grading assignments, creating exams, and giving lectures (on the topics of multivariate methods and functional localization). Involved in the complete reorganization of the course (in 2016), creating a new set of 'computer labs' (programming tutorials and assignments).

## **Open source software projects**

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2018-present

### **exptools2** - <https://github.com/VU-Cog-Sci/exptools2>

The exptools2 package provides a wrapper around psychopy2 for developing easy, high-fidelity (neuroimaging) experimental paradigms.

- 2017 **Porcupine** - [github.com/TimVanMourik/Porcupine](https://github.com/TimVanMourik/Porcupine)  
 Porcupine is a graphical user interface to build reproducible neuroimaging pipelines. Users build their pipelines graphically and Porcupine generates the code necessary to execute the pipeline, as well as a complementary Dockerfile to incorporate users' pipelines in a completely reproducible software environment. I helped develop the Python backend, develop the package's website ([timvanmourik.github.io/Porcupine](https://timvanmourik.github.io/Porcupine)) and the user documentation and examples.
- 2016-present **bidsify** - [github.com/spinoza-rec/bidsify](https://github.com/spinoza-rec/bidsify)  
 'bidsify' is a tool to convert raw, unstructured MRI data to the BIDS format ([bids.neuroimaging.io](https://bids.neuroimaging.io)), allowing easy upload to OpenfMRI, which in turn helps researchers to make their data and analyses more transparent and reproducible.
- 2015-present **skbold** - [github.com/lukassnoek/skbold](https://github.com/lukassnoek/skbold), [skbold.readthedocs.io](https://skbold.readthedocs.io)  
 The skbold package is a set of high-level tools for machine learning on BOLD-fMRI data. It is built on top of and complements Python's main machine learning library 'scikit-learn', providing an intuitive data-structure to represent pattern-based fMRI data, functionality for fMRI-specific feature preprocessing/selection/extraction, and tools for feature visualization.

## Education

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- 2013-2015 **University of Amsterdam – Research Master Psychology (MSc)**  
 Major: Brain and Cognition (cognitive neuroscience)  
 Minor: Methodology and Statistics  
 Thesis: “On the dimensionality of neural representations”.  
 Final grade: 10/10  
 GPA: 9.1 / 10 (graduated *cum laude*)
- 2010-2013 **Amsterdam University College – Liberal Arts and Science (BA)**  
 Major: Social science (emphasis on cognitive psychology)  
 Minor: Science (emphasis on behavioral neuroscience)  
 Thesis: “Moral emotions, attentional vigilance, and behavior: Consequences of feeling (im)moral.” Final grade: 95%.  
 GPA: 4.0. Graduated *summa cum laude*.
- 2009-2010 **Santa Barbara City College – Pre-university orientation year**  
 GPA: 3.9.  
 Misc.: Varsity volleyball team player
- 2003-2009 **Johan van Oldenbarnevelt Gymnasium**  
 Major: Social science course curriculum  
 GPA: 7.9 / 10.

## Work experience

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- Nov 2015-present    **University of Amsterdam**  
Function:    PhD student  
Project:    Investigating computational models of face (expression) perception and their neural implementation.  
Promotor:    Prof. dr. Agneta Fischer (social psychology)  
Supervisors:    Dr. H. Steven Scholte (brain & cognition) and Dr. Suzanne Oosterwijk (social psychology)
- 2013-2015    **Spinoza Centre for Neuroimaging (University of Amsterdam, FMG)**  
Function:    Lab assistant / MR operator  
Duties:    Assisting researchers in the 3T (f)MRI scanning procedure. Experience with executing studies using BOLD-MRI, structural MRI, arterial spin labeling and magnetic resonance spectroscopy. Responsible for weekly/monthly quality control of the Philips Achieva 3T scanner. Led an internal project on the signal quality of multiband (multislice-excitation) sequences versus regular BOLD and DTI sequences.
- 2013-2014    **De Bijlespartner**  
Function:    Tutor statistics and biological psychology; Thesis supervision of undergraduate psychology theses.  
Duties:    Helping university students with preparing for their exams, both on an individual basis and for large groups (>10); supervision and assistance in writing, structuring, and data analyses of undergraduate theses.
- May-July 2013    **Leiden University / KNAW: Academy Assistants Programme**  
Function:    KNAW research assistant  
Duties:    Assisting in executing and (behavioral) data analysis of an fMRI study on reward processing of visually presented stimuli of palatable food and attentional load.

## Extra-curricular activities

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- 2013-2014    **Promotion committee, student association D.E.R.M.**  
Function:    General committee member  
Duties:    Organizing activities for prospective new members during the VU and UvA introduction weeks.
- 2012-2013    **AUC:Press**  
Function:    Member of founding board and head editor, section: Life sciences and psychology.  
Duties:    Setting up and managing the journal's peer-review system, selecting and editing undergraduate papers for

AUC's first academic open-submission, student-run journal.

2011-2012      **International Student Network Amsterdam (ISN)**  
Function:      Treasurer (part-time: 20 hrs/week)  
Duties:        Regulating ISN's finances, including keeping track of cash flow, constructing and maintaining ISN's budget (~ €130,000).

## **Distinctions, scholarships, and grants**

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2019            **Poster prize - NVP winter conference 2019 (€100)**  
For my poster on "AOMIC: a collection of publicly available population imaging datasets.

2018            **Grassroots education grant (with Noor Seijdel; €1000)**  
Award to implement automatic grading/feedback using 'nbgrader' in programming education.

2017            **Winner of the TransIP/Tweakers VPS challenge**  
My application 'VoxelViz', a web-based app to interactively visualize MRI-data and results, won first place (prize: laptop + VR headset worth €3500) in the challenge to develop an original and creative application on a virtual private server (VPS). More information at <https://github.com/lukassnoek/VoxelViz>.

2015            **Thesis award – Research Master Psychology (€250)**  
Award for the best thesis at the Research Master Psychology at the University of Amsterdam, 2014-2015

2015            **1<sup>st</sup> place – ABC-BIC NeuroImaging Symposium (€ 250)**  
Rewarded for the oral presentation of my Research Master internship research 'Decoding Emotions'.

2015            **Travel stipend – University of Amsterdam (€ 1700)**  
Granted several travel stipends to visit the prestigious *Human Brain Mapping* conference (Honolulu, HI, U.S.A.) to present my internship research. Stipends were awarded by the Brain & Cognition group (€1000), the International Office Psychology (€300), and the Graduate School of Psychology (€400).

2014            **Honorable mention – Graduate Research Conference Psychology**  
Received an honorable mention regarding the poster presentation of the Decoding Emotions project for receiving the most votes from staff members.

2013            **Thesis of Highest Distinction – Amsterdam University College**  
Highest award for bachelor theses at Amsterdam University College

- 2013                    **KNAW assistantship**  
Paid assistantship for ambitious and talented students who pursue a career in science and can gain experience in doing research. It was used for setting up and executing an fMRI study at Leiden University under the supervision of Dr. Lotte van Dillen.
- 2011                    **Beta-Beurs Scholarship – University of Amsterdam (€ 4000)**  
Received a grant of €4000 to spend on interdisciplinary research as part of my bachelor thesis. It was used in for an electrophysiological study on attentional effects of moral emotions conducted in collaboration with Leiden University.
- 2009-2010            **Academic Honor Roll List for Student-Athletes**  
Honorable mention on this list for getting outstanding GPAs in both pre-season, 3.7 GPA, and in-season, 4.0 GPA (Santa Barbara City College).

## Skills & proficiencies

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	Programming		Other
<b>Python</b>	Extensive	<b>Linux env</b>	Intermediate
<b>R</b>	Intermediate	<b>Git/Github</b>	Intermediate
<b>MATLAB</b>	Working knowledge	<b>FSL</b>	Extensive
<b>Bash</b>	Intermediate	<b>LaTeX</b>	Intermediate

## Publications

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Oosterwijk, S., **Snoek, L.**, Tekoppele, J., Engelbert, L., & Scholte, H. S. (2019). Choosing to view morbid information involves reward circuitry. *BioRxiv* preprint, 795120.

van Elk, M., & **Snoek, L.** (2019). The Relationship Between Individual Differences in Grey Matter volume and Religiosity: A High-Powered Voxel-Based-Morphometry Study. *European Journal of Neuroscience*, Registered Report. DOI: <https://doi.org/10.1111/ejn.14563>.

**Snoek, L.\***, Miletic, S.\*, & Scholte, H.S. (2019). A universal method to control confounds in multivoxel pattern analysis of MRI data. *NeuroImage*, 184, 741-760.

Van Mourik, T., **Snoek, L.**, Knapen, T., & Norris, D. (2018). Porcupine: interactive automatic pipeline software for neuroimaging analysis. See <https://timvanmourik.github.io/Porcupine>.

Oosterwijk, S.\*, **Snoek, L.\***, Rotteveel, M, L. Barrett & Scholte, S. (2017). Decoding Emotions: Using MVPA to explore the neural overlap between emotion experience and emotion understanding. *Social, Cognitive, and Affective Neuroscience*, 12(7): 1025-1035.

\* Authors contributed equally

## Invited talks, organized workshops and symposia, and public outreach

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“Faces of Science” ambassadorship: science communication and public outreach, including (radio) interviews (*NTR Radio 1*, *Focus Wetenschap*), popular science talks, and blogging. See <https://www.nemokennislink.nl/facesofscience/wetenschappers/lukas-snoek/>.

*Docker tutorial for scientists*. OpenMR Benelux meeting, Nijmegen, 22 January 2018.

*Multivariate Pattern Analysis*. Invited speaker at the Spinoza Centre fMRI course, Amsterdam, 28 November 2018.

*Computational cognitive (neuro)science: what, why, and how?* Symposium organized at the University of Amsterdam, Amsterdam, 16 February 2018 (with Jolien Francken and Lola Beerendonk).

*Git(hub): version control for scientists*. Workshop given for the lab of Dr. Simon van Gaal, University of Amsterdam, Amsterdam, 22 February 2018.

Invited speaker at Howl, a talkshow/dance performance/concert hosted by Spinvis, to talk about the nature of emotion; Purmerend, 11 November 2017.

*MVPA of fMRI data in Python*, a workshop organized for the “International Conference for Cognitive Neuroscience”, Amsterdam, 5 August 2017 (with Steven Miletic). Materials available from [lukas-snoek.com/ICON2017](http://lukas-snoek.com/ICON2017).

*Decoding the brain and disease: promises and pitfalls of machine learning in science and medicine*. Invited speaker at the “cognition meeting” from the *Antoni van Leeuwenhoek (Nederlands Kanker Instituut)*, 19 September 2017, Amsterdam, The Netherlands.

*Het (on)meetbare brein*. Spui25: Proost op de Wetenschap, 12 Mei 2017, Amsterdam, The Netherlands (a popular science talk on the use of brain scans in science and society).

## Conference presentations

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Miletic, S. & **Snoek, L.** A universal method to deal with confounds in multivoxel pattern analyses. Poster presentation at the *International Conference for Cognitive Neuroscience (ICON)*, 5 August 2017, Amsterdam, The Netherlands.

**Snoek, L.** Decoding Emotions: Using MVPA to explore the neural overlap between emotion experience and emotion understanding. *Associatie van Sociaal-Psychologische Onderzoekers (ASPO) conference*, 12 December 2015, Amsterdam, The Netherlands.

**Snoek, L.** Local vs. global brain representations. Poster presentation at the *NVP winter conference 2015*, 18 December 2015, Egmond aan Zee, The Netherlands.

**Snoek, L.** Decoding emotions in the brain. *ABC-BIC Neuroimaging Symposium*, 28 April 2015, Amsterdam, The Netherlands.

**Snoek, L.** Exploring the neural overlap between emotion experience and understanding. Poster presentation at the *Organization for Human Brain Mapping Conference 2015*, 17 June 2015, Honolulu (HI.), U.S.A.

**Snoek, L.** Patterns of emotion components. Presented at the *Brain and Emotion EASP pre-conference*, 8 July 2014, Amsterdam, The Netherlands.