

# Burak Gür

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Postdoctoral researcher in visual processing  
Marion Silies lab - Mainz, Germany

## Education

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<b>Ph.D. in Neurosciences</b>	<b>2022</b>
International Max Planck Research School (IMPRS) for Neurosciences	
Grade: <i>summa cum laude</i>	
Thesis: Molecular and circuit analysis of stable contrast processing in the visual system	
Advisor: Prof. Dr. Marion Silies	
Georg-August University, Göttingen, Germany	
<b>M.Sc. in Neurosciences</b>	<b>2017</b>
International Max Planck Research School (IMPRS) for Neurosciences	
Georg-August University, Göttingen, Germany	
<b>B.Sc. in Molecular Biology, Genetics and Bioengineering</b>	<b>2015</b>
Sabanci University, Istanbul, Turkey	

## Courses

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<b>CAJAL Course in Computational Neuroscience</b>	<b>2022</b>
Project: Uncertainty in Reinforcement Learning	
Supervisor: Joe Paton	
Champalimaud Centre for the Unknown, Lisbon, Portugal	
<b>13<sup>th</sup> Advanced Scientific Programming in Python (ASPP Summer School)</b>	<b>2021</b>
University of Bordeaux, Bordeaux, France	
<b>RIKEN CBS Summer Program</b>	<b>2017</b>
RIKEN Center for Brain Sciences (CBS), Wako-shi, Saitama, Japan	

## Research experience

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<b>Post doctoral researcher   Visual processing</b>	<b>2022-now</b>
Advisor: Prof. Dr. Marion Silies	
Johannes-Gutenberg-University of Mainz, Germany	
<b>Ph.D. student   Visual processing</b>	<b>2017-2022</b>
<ul style="list-style-type: none"><li>• Implementation of stable contrast processing in the early visual system</li><li>• Development of genetic tools aimed for disrupting synapses between specific neurons</li></ul>	
Advisor: Prof. Dr. Marion Silies	
European Neuroscience Institute Göttingen and Johannes-Gutenberg-University of Mainz, Germany	

- Research intern | Laboratory of circuit mechanisms of sensory perception** **2017**  
• Effects of non-associative learning in the *Drosophila* olfactory system  
Supervisor: Dr. Hokto Kazama  
RIKEN Brain Science Institute (CBS), Wako-shi, Saitama, Japan
- M.Sc. student | Visual processing** **2016-2017**  
• Molecular mechanisms that regulate the physiological properties of first-order interneurons in the fly visual system.  
Supervisor: Prof. Dr. Marion Silies  
European Neuroscience Institute, Göttingen, Germany
- Rotation student | Sleep & waking lab** **2016**  
• *in vivo* two-photon imaging and optogenetics for investigating sleep inducing neurons in *C.elegans*  
Supervisor: Prof. Dr. Henrik Bringmann  
Max Planck Institute for Biophysical Chemistry, Göttingen, Germany
- Rotation student | Cognitive neurophysiology lab** **2016**  
• Auditory midbrain coding of predictability in context-sound associations  
Supervisor: Dr. Livia de Hoz  
Max Planck Institute for Experimental Medicine, Göttingen, Germany
- Research intern | Neuromuscular Division JHU** **2014**  
Supervisor: Ahmet Hoke MD, PhD  
Johns Hopkins University, Baltimore, MD/USA
- Research assistant | Sayers lab** **2013-2015**  
Supervisor: Prof. Dr. Zehra Sayers  
Sabanci University, Istanbul, Turkey

## Peer-reviewed publications

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M.D. Ketkar\*, B. Gür\*, S. Molina-Obando\*, M. Ioannidou, C. Martelli, M.Silies. First-order visual interneurons distribute distinct contrast and luminance information across ON and OFF pathways to achieve stable behavior. *eLife* (2022) - [link](#)

M. Henning, G. Ramos-Traslosheros, B. Gür, M.Silies. An optimal population code for global motion estimation in local direction-selective cells. *Science Advances* (2021) - [link](#)

M.D. Ketkar\*, K. Sporar\*, B. Gür, G. Ramos-Traslosheros, M. Seifert, M. Silies. Luminance information is required for the accurate estimation of contrast in rapidly changing visual contexts. *Curr. Biol.* (2020) - [link](#)

B. Gür, K. Sporar, A. Lopez-Behling, M. Silies. Distinct expression of potassium channels regulates visual response properties of lamina neurons in *Drosophila melanogaster*. *J Comp Physiol A* (2019) - [link](#)

S. Molina-Obando, J.F. Vargas-Fique, M. Henning, B. Gür, T. Moritz Schladt, J. Akhtar, T.K. Berger, M. Silies. ON selectivity in the *Drosophila* visual system is a multisynaptic process involving both glutamatergic and GABAergic inhibition. *eLife* (2019) - [link](#)

H. Cruces-Solís, Z. Jing, O. Babaev, J. Rubin, B. Gür, D. Krueger-Burg, N. Strenzke, L. de Hoz. Auditory midbrain coding of statistical learning that results from discontinuous sensory stimulation. *PLoS Biol.* (2018) - [link](#)

J. Peng\*, I. Santiago\*, C. Ahn, B. Gür, C. K. Tsui, Z. Su, C. Xu, A. Karakhanyan, M. Silies, M.Y. Pecot. *Drosophila* Fezf coordinates laminar-specific connectivity through cell-intrinsic and cell-extrinsic mechanisms. *eLife* (2018) - [link](#)

## Conference contributions

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**Selected Talk | Neurofly 2022** 2022  
Implementation of stable contrast computation in the visual circuits (T43)  
St. Malo, France

**Poster | FENS Forum of Neuroscience** 2018  
Molecular mechanisms that shape neuronal responses in early visual processing. (f18-2302)  
Berlin, Germany

**Poster | Neurizons** 2018  
Molecular mechanisms that shape neuronal responses in early visual processing. (13)  
Göttingen, Germany

**Organizer | Neurizons** 2018  
Göttingen, Germany

**Poster | RIKEN BSI Summer Program** 2017  
Molecular mechanisms that shape neuronal responses in early visual processing.  
Wako-shi, Saitama, Japan

## Honors & Awards

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**CRC 1080 PhD Cooperation Program** 2022  
10.000€ funding for a collaborative project within the CRC 1080

**GGNB Travel Grant** 2021  
Covering the costs of ASPP Python Summer School 2021

<b>RIKEN CBS Summer Program Stipend</b> RIKEN Center for Brain Sciences (CBS), Wako-shi, Saitama, Japan	2017
<b>Stipend by the Max Planck Society</b> IMPRS for Neurosciences, Göttingen, Germany	2015-2017
<b>B.Sc. Merit Scholarship</b> Sabanci University, Istanbul, Turkey	2010-2015

## Teaching and Volunteering

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<b>Tutor, Organizer   TRenD in Africa (non-profit organization)</b>	since 2021
<ul style="list-style-type: none"> <li>Produced teaching material and taught parts of an online Python course for students in Africa (<a href="https://github.com/trendinafrica/python_workshop">https://github.com/trendinafrica/python_workshop</a>)</li> <li>Currently working on establishing a Python school</li> </ul>	
<b>Organizer   Neuromatch Academy (non-profit organization)</b>	since 2021
<ul style="list-style-type: none"> <li>Developed tools to streamline TA application processing, led TA selection efforts, and trained and supported TAs throughout the course</li> <li>TA trainings included pedagogic methods, DEI</li> </ul>	
<b>Supervisor   Silies lab</b>	2019-2022
<ul style="list-style-type: none"> <li>Designed projects and supervised 6 rotation and 2 M.Sc. students.</li> </ul>	
<b>Teaching Assistant   Neuromatch Academy (non-profit organization)</b>	2020
<b>Lecturer, Organizer   XLAB Göttingen</b>	2018-2019
<ul style="list-style-type: none"> <li>Organized lectures that introduced <i>Drosophila melanogaster</i> as a model to study neural circuits and a workshop for investigating neural circuits with two photon calcium imaging.</li> </ul>	
<b>Tutor   IMPRS Göttingen</b>	2016-2018
<ul style="list-style-type: none"> <li>Designed and taught tutorials, exercises and paper discussions for "<i>Drosophila</i> genetics and tools" and "Development of the insect nervous system" courses for graduate students.</li> </ul>	
<b>TA   Sabanci University</b>	2014-2015

## Skills

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### Computer & Data analysis

- Python, MATLAB
- GitHub
- Image analysis (ImageJ)
- Graphics and design (Inkscape, Adobe Illustrator, Affinity Designer)

### Experimental

- in vivo* two-photon calcium imaging and holographic optogenetics
- Immunostainings and confocal microscopy
- Behavioral paradigms
- Electrophysiology (*in vivo* multi-unit recordings, patch clamp)
- Molecular biology and genetics

### Languages

- Turkish (native)
- English (fluent)
- German (C1)
- Japanese (JLPT4)
- Spanish (A2)

