Prof. Dr. Maximilian Jösch

IST Austria
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3400 Klosterneuburg
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Research Statement

My laboratory is interested in understanding the neuronal basis of innate behaviors, i.e., the processes implemented by neuronal circuits to transform sensory information into motor commands. Using a combination of molecular and physiological approaches during animal behavior, we aim to reveal the principles and motifs of neuronal computation. We split our effort into two different model organisms, the mouse and the fruit fly (*Drosophila melanogaster*), to take advantage of their unique strengths and gather a general understanding (across phyla) of computational principles.

Education

Dr. rer. nat. in Biology — 2005 – 09
Max-Planck Institute of Neurobiology &
Ludwig-Maximilians University; Munich – Germany

Diplom in Biochemistry — 1999 – 05
Eberhards-Karls-Universität, Tübingen – Germany

Astronomy and Physics — 1999
Pontilicia Universidad Católica, Santiago – Chile

Abitur — 1998
Deutsche Schule, Santiago – Chile

Research Experience

Assistant Professor — 2017 – present
IST Austria
Neuroethology Lab

Postdoctoral Fellow — 2010 – 2016
Harvard University, Cambridge MA
Advisor: Dr. Markus Meister
Visual processing in the mouse retina, function and structure

Postdoctoral Fellow — 2009 – 10
Max Planck Institute of Neurobiology, Munich – Germany
Advisor: Alexander Borst
Dissection of the direction selective circuitries of the fly

Ph.D. Thesis — 2005 – 09
Max Planck Institute of Neurobiology, Munich – Germany
Advisors: Dr. Alexander Borst & Dr. Dierk Reiff
Lobula Plate Tangential Cells in Drosophila melanogaster;
Response properties, Synaptic Organization & Input Channels

Diploma Thesis — 2005
Max Planck Institute of Neurobiology
Advisors: Dr. Dierk Reiff
Development of neurogenetic tools for Drosophila

Scientific and Mountaineering Assistant — 2005
CECS Institute – Chile
Geophysics and glaciology research project in
Campos de Hielo Sur, Patagonia, Chile

Courses

Mini MBA / Harvard Business School — 2014
Harvard University, Cambrige, MA, USA

Machining Course / Physics Department — 2010
Harvard University, Cambrige, MA, USA

Advance Course in — 2007
Computational Neuroscience
Gatsby and Bernstein Neuroscience Course,
Arcachon – France

Awards, Grants and Honors

Kavli-Fens Scholar	2018
ERC Starting Grant – *"Daphne"*	2017
Article Recommendation by F1000	2016
Best Poster Award / FASEB Meeting	2014
Otto Hahn Medal / Max Planck Society	2011
Best Neuroscience Article / Neuroforum	2011
HFSP Long-term Fellowship	2010
Summa Cum Laude / PhD thesis	2009
Highest Overall Grade / Biochemistry degree	2005

Commission of Trust

Board Member — 2019
Kavli-Fens Network of Excellence

Alpbach Forum — 2019
Member of the Scientific Board

Scientific Reviewer — 2017 – present
Neuron, Sci. Rep., Plos One, Elife

Scientific Evaluator
Research Foundation - Flanders (FWO)
Ph.D. Thesis evaluator
University of Vienna, IST Austria

Student Mentor IST Austria

Teaching and Outreach

Zoom Kindermuseum, Wissensdurst, etc. — 2019

Neuroscience Track Course — 2018 – present
IST Austria – Graduate Course

Guest Lecturer — 2012
Harvard University, Cambridge, MA
The Physics of Sensory Systems in Biology

Founder and Chief Organizer — 2007
Life Science PhD Symposium *Interact*
http://www.munich-interact.org/
Munich – Germany

Course Assistant — 2005 – 07
Ludwig-Maximilians University, Munich – Germany
Practical course on animal physiology

Technical Skills

Neuro-engineering & machining
Programming (hardware and software) & modeling
Data Analysis
Molecular biology, biochemistry, mouse & fly genetics
Electrophysiology & Imaging (*in vivo* and *ex vivo*)

Supervision

Postdocs
Dr. Anton Sumser (EMBO & HFSP Fellow)
Dr. Tomas Vega-Zuniga
Dr. Wiktor Mlyrnaski (IST Plus)

Students
Laura Burnett
Victoria Pokusaeva
Roshan Sataphathy
Dyviansh Gupta

Interns
Arka Pal
Mia Juračić

Software Engineer
Dr. Olga Symonova

Personal Information

Married, two daughters
Languages: English, Spanish, German & Portuguese
Hobbies: Mountaineering, Climbing,
Woodworking & Tae kwon do