

## Felix H. Taschbach

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CONTACT INFORMATION	<a href="mailto:ftaschba@ucsd.edu">ftaschba@ucsd.edu</a> <a href="http://www.felixt.dev/">www.felixt.dev/</a>								
RESEARCH INTERESTS	Computational / Theoretical Neuroscience, Machine Learning, Representation Learning								
EDUCATION	<p><b>University of California San Diego (UCSD)</b>, La Jolla, California</p> <p>PhD, Biological Science estimated graduation: July 2025 Computational neuroscience research as part of the Benna Lab at UCSD and the Tye Lab at the Salk Institute for Biological Studies. Current GPA: 4.0/ 4.0 Advisors: Dr. <a href="#">Marcus Benna</a>, UCSD Dr. <a href="#">Kay Tye</a>, Salk Institute for Biological Studies</p> <p><b>Maastricht University</b>, Maastricht, the Netherlands</p> <p>MSc, Systems Biology July 2019 GPA: 4.0/4.0 (converted) - graduated <i>summa cum laude</i> Thesis completed at Zuckerman Mind Brain Behavior Institute at Columbia University Topic: <i>Decoder-based analysis of internal representations of space from large scale recordings of population activities in the dentate gyrus and CA1 areas of the mouse hippocampus</i> Advisors: Dr. <a href="#">Stefano Fusi</a>, Columbia University Dr. <a href="#">Judith Peters</a>, Maastricht University Won MaCSBio Thesis Award from the Maastricht Centre for Systems Biology</p> <p>BSc, <a href="#">Data Science and Knowledge Engineering</a> July 2016 GPA: 3.8/ 4.0 (converted) Thesis completed at Institute for Quantum Information at RWTH Aachen University Topic: <i>Classical and Quantum Algorithms for Quantum Simulation</i> Advisors: Dr. <a href="#">Ronald Westra</a>, Maastricht University Dr. <a href="#">Barbara Terhal</a>, RWTH Aachen University Independent Study in Quantum Computing supervised by Dr. <a href="#">David Eck</a></p>								
PROFESSIONAL EXPERIENCE	<p><b>Visiting Scientist</b> November 2018 to June 2019 Worked at Mortimer B. Zuckerman Mind Brain Behavior Institute in New York, NY, while I completed my master thesis.</p> <p><b>Intern</b> September 2016 to February 2017 Frontend Developer at bitstars GmbH in Aachen, Germany.</p>								
TEACHING EXPERIENCE	<p><b>Teaching Assistant</b></p> <table><tr><td>Neuromatch Academy: Computational Neuroscience</td><td>Summer 2022</td></tr><tr><td>BIPN164 - Computational Models of the Brain</td><td>Spring 2022</td></tr><tr><td>MAT1004 - Imperative Programming</td><td>Spring 2017</td></tr><tr><td>SCI2011 - Introduction to Programming</td><td>Fall 2016</td></tr></table> <p>Instructor: Dr. Jerry Spanakis (G.)</p>	Neuromatch Academy: Computational Neuroscience	Summer 2022	BIPN164 - Computational Models of the Brain	Spring 2022	MAT1004 - Imperative Programming	Spring 2017	SCI2011 - Introduction to Programming	Fall 2016
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PUBLICATIONS	<p><b>Taschbach FH</b>, Stefanini F, Benna MK, Fusi SF. <i>Abstract representations of space in the mouse dentate gyrus. in prep</i></p> <p>Mills F, Lee CR, Howe JR, Shao S, Lemieux ME, Borio MR, <b>Taschbach FH</b>, Patel RR, Keisler MN, Chen HS, Gross AL, Batra K, Tye KM. <i>Amygdalostratial transition zone neurons encode sustained valence to direct conditioned behaviors. in prep</i></p> <p>Padilla-Coreano N, Batra K, Patarino M, Chen Z, Rock RR, Zhang R, Hausmann Javier Weddington SB, Patel RR, Zhang YE, Fang H, Keyes LR, Libster A, Matthews GA, Curley JP, <b>Taschbach FH</b>, Fiete IR, Lu C, Tye KM. <i>A cortical-hypothalamic circuit</i></p>								

CONFERENCES	<b>2019 Conference on Cognitive Computational Neuroscience</b>	
	Presented a poster on my master thesis research.	
	Title: Abstract representations of space in the mouse dentate gyrus accessible under <a href="https://doi.org/10.32470/CCN.2019.1403-0">doi.org/10.32470/CCN.2019.1403-0</a>	
LANGUAGES	German (Native) English (Fluent in speaking, proficient in writing)	
TECHNICAL COMPETENCIES	Programming languages: MATLAB, Python, R Libraries scikit-learn, pytorch, scipy, matplotlib, seaborn, ggplot2	
SUMMER COURSES	<b>Neuromatch Academy:</b> Deep Learning	Summer 2021
	<b>Neuromatch Academy:</b> Computational Neuroscience	Summer 2020
RESEARCH EXPERIENCE	<b>Rotation Project</b>	November 2020 - March 2021
	I analyzed electrophysiological recordings from the hippocampus of freely moving rats and developed filters to find short wave ripple and dentate spikes in real time. Under the supervision of Dr. Jill Leutgeb and Dr. Stefan Leutgeb at UCSD.	
	<b>Master Thesis</b>	November 2018 to June 2019
	I analyzed neural activity, in vivo, from large populations of dentate gyrus and CA1 neurons of freely moving mice. Using machine learning techniques, I studied the representation of movement direction and position and found that these two variables are more independently encoded than was previously thought. Advisors: <a href="#">Dr. Stefano Fusi</a> , Columbia University <a href="#">Dr. Judith Peters</a> , Maastricht University	
	<b>Research Project</b>	October 2017 to April 2018
	I worked with Dr. Domenica Dibeneditto from the Maastricht Centre for Systems Biology on simulating 3D neuron cultures using NEURON.	
	<b>Research Project</b>	Winter 2018
	Completed group project using statistical analysis of multiple omics datasets of subjects with extra-hepatic cholestasis. The project consisted of a report and presentation of the results. Supervisor: Dr. Zita Soons, Maastricht University	
	<b>Bachelor Thesis</b>	January 2016 to June 2016
	This thesis described proof-of-principle simulations that were completed to see whether quantum algorithms can already compete with classical algorithms, even if they are run on quantum simulators and therefore do not gain an exponential speed increase by exploiting quantum mechanics. A split-step fourier algorithm was implemented on multiple quantum simulators and compared to an implemented version of the finite-difference time-domain algorithm. Advisors: <a href="#">Dr. Ronald Westra</a> , Maastricht University <a href="#">Dr. Barbara Terhal</a> , RWTH Aachen University	