5102 Harold Frank Hall University of California Santa Barbara, CA 93106-5110

Phone: (805) 893 - 4948 Email: mbeyeler@ucsb.edu Lab: bionicvisionlab.org

2017

2014

Web: cs.ucsb.edu/people/faculty/beyeler

ACADEMIC APPOINTMENTS

| Assistant Professor · Computer Science (CS) · Psychological & Brain Sciences (PBS) | 2019 – present |
|---|----------------|
| Associate Director · Research Center for Virtual Environments and Behavior (ReCVEB) | |
| University of California, Santa Barbara (UCSB) | |

• **Postdoctoral Fellow** • Psychology • Institute for Neuroengineering • eScience Institute 2016 – 2019 University of Washington (UW)

EDUCATION

| · PhD in Computer Science · Specialization in Computational Neuroscience | 2012 – 2016 |
|---|-------------|
| University of California, Irvine (UCI) | |
| Dissertation: Cortical neural network models of visual motion perception for navigation, May 2016. Committee: JL Krichmar (chair), N Dutt (co-chair), O | <u> </u> |
| MS in Biomedical Engineering · Focus on Bioelectronics ETH Zurich, Switzerland | 2009 – 2011 |
| · BS in Electrical Engineering · Major in Micro- and Optoelectronics <i>ETH Zurich, Switzerland</i> | 2005 – 2009 |

HONORS & AWARDS

| | Major Fellowships, Honors & Awards K99/R00 Pathway to Independence Award: National Institutes of Health (NIH) | 2018 |
|---|--|------|
| | Innovation in Neuroengineering & Data Science Postdoctoral Fellowship: Gordon & Betty Moore Foundation, Alfred P. Sloan Foundation, Washington Research Foundation (WRF) | 2016 |
| • | Chair's Fellowship for Outstanding PhD Applicants: UCI | 2012 |
| | Best Paper Award Nominations | |
| | Honorable Mention Award (top 4%): C9, Augmented Humans (AH) | 2021 |
| | Best Student Paper Nominee: C6, IEEE International Joint Conference on Neural Networks (IJCNN) | 2018 |
| • | Best Student Paper Nominee: C1, IEEE Biomedical Circuits & Systems Conference (BioCAS) | 2010 |
| | Other Conference Awards | |
| | Abstract of Distinction (top 3%): A34, Association for Research in Vision & Ophthalmology (ARVO) | 2020 |
| | Best Poster Award: A19, Eye & Chip World Congress on Artificial Vision | 2017 |

Other Academic Awards

| · Finalist: Postdoc Mentoring Award, <i>UW</i> | 2019 |
|---|------|
| · Travel Award: CSHL Computational Neuroscience–Vision, Helmsley Charitable Trust | 2018 |

· Best Workshop Talk Award: A6, IEEE International Conference on Robotics & Automation (ICRA)

· Presenter's Travel Award, A15: Computational & Systems Neuroscience (COSYNE)

2020

 \cdot Justin Kasowski: Dynamical Neuroscience (DYNS) Fellowship & Summer Stipend, UCSB

MENTEE HONORS & AWARDS

Graduate Students

| · Ezgi I. Yücel: Innovation in Neuroengineering Graduate Fellowship, WRF | 2017 |
|--|-------------------------|
| Undergraduate Students | |
| · Jon Luntzel: Innovation in Neuroengineering Undergraduate Fellowship, WRF | 2019 |
| RESEARCH GRANTS & OTHER SUPPORT Total: | \$1.72m, as PI: \$1.46m |
| Active Funding | |
| • Event-based scene understanding for bionic vision, <i>UCSB Academic Senate Research Faculty Grant.</i> M Beyeler, PI . (\$10,000) | 2021 - present |
| R01 NS121919: Cortical visual processing for navigation, <i>NIH</i> . S Smith, PI; M Goard, Co-PI; C Niell, Co-PI; M Beyeler, Co-I. (\$718,387) | 2021 – present |
| An inaugural data science summit at UCSB, Academic Data Science Alliance (ADSA) A Franks, PI; A Horst, Co-PI; M Beyeler, Co-PI. (\$9,258) | 2021 – present |
| K99/R00 EY029329: Virtual prototyping for retinal prosthesis patients, <i>NIH</i> . M Beyeler, PI . (\$968,319) | 2018 – present |
| Completed Funding | |
| Eye tracking in immersive virtual environments, UCSB Academic Senate Research Faculty Grant. M Hegarty, PI; M Beyeler, Co-PI. (\$5,099) | 2020 – 2021 |
| · Cloud Credits for Research, Amazon Web Services (AWS) (\$10,000) | 2017 |
| ACADEMIC MENTORING | |
| PhD Advisees · Chair | Total: 4 |
| · Byron Johnson, PBS, UCSB (co-chair: Miguel Eckstein, PBS) | 2020 – present |
| · Jacob Granley, CS, UCSB | 2020 - present |
| · Aiwen Xu, CS, UCSB | 2020 – present |
| · Justin Kasowski, DYNS, <i>UCSB</i> | 2019 – present |
| PhD Advisees · Candidacy Committee Member | Total: 3 |
| · Sudhanshu Srivastava, DYNS, <i>UCSB</i> | 2021 |
| · Wenrui Zhang, ECE, <i>UCSB</i> | 2021 |
| · Kexin Chen, Cognitive Sciences, <i>UCI</i> | 2020 |
| MS Advisees | Total: 2 |
| · Ziming Qi, CE, <i>UCSB</i> | F2020 - present |
| · Zuying (Collin) Hu, CS, UCSB | W2020 - X2021 |
| Undergraduate Honor Advisees | Total: 2 |
| · Rachel Mochizuki, PBS Honors Program, UCSB | W2021 - X2021 |
| · Nathan Wu, CS Distinction in the Major Program (DIMAP), UCSB | W2021, S2021 |
| UC LEADS Mentorship Program Advisees | Total: 1 |
| · Kha Nguyen, BS Student, Bioengineering, University of California, San Diego (UCSD) |) X2020 |

High School Mentorship Program Advisees

Total: 2

· Ethan Gao, UCSB Research Mentorship Program, Ojai Valley School

X2020

· Versha Rohatgi, UCSB Research Mentorship Program, Mountain View High School

X2020, X2021

ACADEMIC SERVICE

University Committees

· Member: Faculty Legislature, UCSB

2020 - present

· Postdoctoral Representative: Research Advisory Board, UW

2017 - 2019

Departmental Committees

· Public Relations Committee, Computer Science, UCSB

2019 - present

- Co-chair, 2020 present
- Member, 2019 2020
- · Member: Graduate Admission Committee, Computer Science, UCSB

2019 - 2020

Institutional Working Groups

· Member: Neuroinformatics Special Interest Group, eScience Institute & UWIN, UW

2017 - 2019

· Member: Reproducibility Working Group, eScience Institute, UW

2016 - 2018

Conference Program Committees

· Session Chair: Neuroscience, Scientific Computing with Python (SciPy)

2017

Conference Workshops

 Organizer: Recent Computational Advances in Neuroengineering, Computational & Systems Neuroscience (COSYNE) 2018

Editorial Boards

· Review Editor: Frontiers in Human Neuroscience

2020 - present

· Review Editor: Frontiers in Neurorobotics

2017 - 2020

Ad-Hoc Reviewing · Grants

· Early Career Reviewer (ECR), ZRG1 ETTN-P (81), NIH

2021

Ad-Hoc Reviewing · Conferences

2020, 2021 ACM Conference on Human Factors in Computing Systems (CHI) · 2017, 2018, 2020 Computational & Systems Neuroscience (COSYNE) · 2020, 2021 IEEE Conference on Virtual Reality and 3D User Interfaces (VR) · 2015 IEEE International Conference on Intelligent Robots & Systems (IROS) · 2014 IEEE International Conference on Robotics & Automation (ICRA) · 2014 IEEE International Symposium on Circuits & Systems (ISCAS) · 2019, 2020, 2021 Medical Image Computing & Computer Assisted Intervention (MICCAI) · 2019 Diversity in STEM (SACNAS) · 2017 Scientific Computing with Python (SciPy)

Ad-Hoc Reviewing · Journals

publons.com/researcher/1188259/michael-beyeler

1x ACM Journal on Emerging Technologies in Computing Systems (JETC) \cdot 1x Cognitive Neurodynamics \cdot 6x Frontiers in Neuroscience \cdot 1x Frontiers in Human Neuroscience \cdot 3x Frontiers in Neuroscience \cdot 1x IEEE Transactions on Cognitive and Developmental Systems (TCDS) \cdot 5x IEEE Transactions on Cybernetics \cdot 8x IEEE Transactions on Neural Networks & Learning Systems (TNNLS) \cdot 1x Journal of Computational Neuroscience (JCNS) \cdot 11x Journal of Neural Engineering \cdot 1x Journal of Neuroscience \cdot 3x Journal of Vision \cdot 6x Neural Networks \cdot 1x Neurocomputing \cdot 2x PLoS Computational Biology \cdot 4x PLoS ONE \cdot 1x Restorative Neurology & Neuroscience \cdot 1x Sensors \cdot 1x Vision Research

Last updated: 10 June 2021

Note that in many areas of computer science, *conferences* are the primary venue for peer-reviewed publications, with selectivity and impact often exceeding that of journals (Chen & Konstan, 2010). The opposite is true in neuroscience. Legend: ${}^{\bullet}$ equal contribution, ${}^{\oplus}$ invited publication, ${}^{\otimes}$ review/survey article

Refereed Journal Articles

- J9 BW Brunton, **M Beyeler** (2019). Data-driven models in human neuroscience and neuroengineering $^{\oplus \$}$. *Current Opinion in Neurobiology* 58: 21–29.
- J8 M Beyeler, D Nanduri, JD Weiland, A Rokem, GM Boynton, I Fine (2019). A model of ganglion axon pathways accounts for percepts elicited by retinal implants. *Scientific Reports* 9(1):9199. [Code] [Data]
- J7 M Beyeler (2019). Commentary: Detailed visual cortical responses generated by retinal sheet transplants in rats with severe retinal degeneration. *Frontiers in Neuroscience* 13: 471.
- J6 M Beyeler[®], EL Rounds[®], KD Carlson, N Dutt, JL Krichmar (2019). Neural correlates of sparse coding and dimensionality reduction[®]. *PLOS Computational Biology* 15(6):e1006908.
- J5 M Beyeler, A Rokem, GM Boynton, I Fine (2017). Learning to see again: Biological constraints on cortical plasticity and the implications for sight restoration technologies[®]. *Journal of Neural Engineering* 14(5). Featured cover article.
- J4 M Beyeler, N Dutt, JL Krichmar (2016). 3D visual response properties of MSTd emerge from an efficient, sparse population code. *Journal of Neuroscience* 36(32): 8399–8415.
- J3 M Beyeler, N Oros, N Dutt, JL Krichmar (2015). A GPU-accelerated cortical neural network model for visually guided robot navigation. *Neural Networks* 72: 75–87.
- J2 **M Beyeler**, M Richert, ND Dutt, JL Krichmar (2014). Efficient spiking neural network model of pattern motion selectivity in visual cortex. *Neuroinformatics*, 1–20.
- J1 M Beyeler, ND Dutt, JL Krichmar (2013). Categorization and decision-making in a neurobiologically plausible spiking network using a STDP-like learning rule. *Neural Networks* 48C: 109–124.

Refereed Conference Publications

- C10 Z Hu, M Beyeler (2021). Explainable AI for retinal prostheses: Predicting electrode deactivation from routine clinical measures. *IEEE EMBS Conference on Neural Engineering (NER)*, online.
- C9 N Han, S Srivastava[®], A Xu[®], D Klein, **M Beyeler** (2021). Deep learning-based scene simplification for bionic vision. *Augmented Humans* (AH), online. **Honorable Mention Award (top 4 %).**
- C8 M Beyeler, GM Boynton, I Fine, A Rokem (2019). Model-based recommendations for optimal surgical placement of epiretinal implants. *Medical Image Computing & Computer Assisted Intervention (MICCAI)*, Shenzhen, China.
- C7 M Beyeler (2019). Biophysical model of axonal stimulation in epiretinal visual prostheses. *IEEE EMBS Conference on Neural Engineering (NER)*, San Francisco, CA.
- C6 T-S Chou[®], HJ Kashyap[®], J Xing, S Listopad, EL Rounds, **M Beyeler**, N Dutt, JL Krichmar (2018). CARLsim 4: An open source library for large scale, biologically detailed spiking neural network simulations using heterogeneous clusters. *IEEE International Joint Conference on Neural Networks (IJCNN)*, Rio de Janeiro, Brazil. **Best Student Paper Nominee.** [Code]
- C5 **M Beyeler**, GM Boynton, I Fine, A Rokem (2017). pulse2percept: A Python-based simulation framework for bionic vision. *Scientific Computing with Python (SciPy)*, p.81–88. [Code]
- C4 M Beyeler®, KD Carlson®, T-S Chou®, N Dutt, JL Krichmar (2015). CARLsim 3: A user-friendly and highly optimized library for the creation of neurobiologically detailed spiking neural networks. *IEEE International Joint Conference on Neural Networks (IJCNN)*, Killarney, Ireland. [Code]
- C3 KD Carlson, **M Beyeler**, N Dutt, JL Krichmar (2014). GPGPU accelerated simulation and parameter tuning for neuromorphic applications[©]. Asia and South Pacific Design Automation Conference (ASP-DAC), Suntec, Singapore.

C2 M Beyeler, F Mirus, A Verl (2014). Vision-based robust road lane detection in urban environments. *IEEE International Conference on Robotics & Automation (ICRA)*, Hong Kong, China.

C1 M Beyeler[®], F Stefanini[®], H Proske, CG Galizia, E Chicca (2010). Exploring olfactory sensory networks: simulations and hardware emulation. *IEEE Biomedical Circuits & Systems Conference (BioCAS)*, Paphos, Cyprus. Best Student Paper Nominee.

Refereed Workshop and Lightly Reviewed Short Papers

W1 J Kasowski, N Wu, M Beyeler (2021). Towards immersive virtual reality simulations of bionic vision. *Augmented Humans (AH) '21*, online. (2-page poster paper)

US Patent Applications

- PA2 R Appuswamy, **M Beyeler**, P Datta, MD Flickner, DS Modha (2018). Long short-term memory (LSTM) on spiking neuromorphic hardware. US Patent App 15/434,672.
- PA1 **M Beyeler**, ND Dutt, JL Krichmar (2017). Sparse and efficient neuromorphic population coding. US Patent App 15/417,626.

Selected Contributed Abstracts & Poster Presentations

- A36 A Xu, N Han, S Srivastava, D Klein, **M Beyeler** (2021). Enhancing simulated prosthetic vision with deep learning-based scene simplification strategies. *Vision Sciences Society (VSS) '21*, online.
- A34 **M Beyeler**, GM Boynton, I Fine, A Rokem (2020). Interpretable machine-learning predictions of perceptual sensitivity for retinal prostheses. *Association for Research in Vision & Ophthalmology (ARVO) '20*, Baltimore, MD. (**Abstract of Distinction, top 3 %**; canceled, COVID-19)
- A33 **M Beyeler**, GM Boynton, I Fine, A Rokem (2019). Model-based recommendations for optimal surgical placement of epiretinal implants. *The Eye & the Chip '19*, Dearborn, MI. (poster)
- A28 **M Beyeler**, EL Rounds, KD Carlson, N Dutt, JL Krichmar (2018). Sparse coding and dimensionality reduction in the brain. *OCNS'18*, Seattle, WA. (poster)
- A25 **M Beyeler**, El Yucel, A Rokem, GM Boynton, I Fine (2018). Optimizing stimulation protocols for prosthetic vision based on retinal anatomy. *COSYNE'18*, Breckenridge, CO. (oral)
- A20 **M Beyeler**, A Rokem, GM Boynton, I Fine (2017). Reverse-engineering optimized stimulation protocols in epiretinal prosthesis patients. *The Eye & the Chip '17*, Detroit, MI. (oral, **Platform Presentation**)
- A19 GM Boynton, A Rokem, **M Beyeler**, J Dorn, NC Sinclair, MN Shivdasani, MA Petoe, R Hornig, I Fine (2017). Efficient and scalable measurements of sensitivity for high resolution electrode arrays. *The Eye & the Chip '17*, Detroit, MI. (poster, **Best Poster Award**)
- A18 **M Beyeler**, N Dutt, JL Krichmar (2017). A sparse coding model of MST can account for human heading perception in the presence of eye movements. *ECVP'17*, Berlin, Germany. (poster)
- A17 **M Beyeler**, GM Boynton, I Fine, A Rokem (2017). pulse2percept: A Python-based simulation framework for bionic vision. *SciPy'17*, Austin, TX. (oral, video)
- A16 **M Beyeler**, A Rokem, GM Boynton, I Fine (2017). Modeling the perceptual experience of retinal prosthesis patients. *VSS'17*, St. Pete's Beach, FL. (oral)
- A10 **M Beyeler**, M Richert, N Oros, N Dutt, JL Krichmar (2016). A cortical neural network model of visual motion perception for decision-making and navigation. *COSYNE'16*, Salt Lake City, UT. (poster)
- A8 **M Beyeler**, KD Carlson, T-S Chou, N Dutt, JL Krichmar (2015). CARLsim 3: A user-friendly and highly optimized library for the creation of neurobiologically detailed spiking neural networks. *IJCNN'15*, Killarney, Ireland. (oral)
- A6 **M Beyeler**, M Richert, N Oros, N Dutt, JL Krichmar (2014). A cortical spiking neural network model for visually guided robot navigation. Neurobiologically Inspired Robotics workshop, *ICRA'14*, Hong Kong, China. (oral, **Best Student Talk Award**).
- A1 **M Beyeler**, ND Dutt, JL Krichmar (2013). Spiking neural network model of visual pattern recognition and decision-making using a stochastic STDP learning rule. *JSNC'13*, Pasadena, CA. (poster)

INVITED EXTERNAL TALKS & SEMINARS

| Scheduled | |
|--|---|
| T15 17th Annual World Congress of the Society for Brain Mapping & Therapeutics, Los Angeles, CA | Jul 2021 |
| | |
| Past T14 14th Conference on Learning & Memory: Cellular and Systemic Views (canceled, COVID-1 | .9) Mar 2020 |
| Leibniz Institut für Neurobiologie, Magdeburg, Germany | • |
| T13 Department of Cognitive Sciences, <i>University of California, Irvine, CA</i> | Apr 2019 |
| Γ12 Department of Computer Science, <i>Duke University, Durham, NC</i> | Mar 2019 |
| T11 Department of Computer Science, <i>University of California, Santa Barbara, CA</i> | Jan 2019 |
| T10 COSYNE Workshop on Recent Advances in Neuroengineering, Breckenridge, CO | Mar 2018 |
| T9 Center for Applied and Translational Sensory Science (CATSS), <i>University of Minnesota</i> , <i>Minneapolis</i> , <i>MN</i> | Feb 2018 |
| T8 Eye & Chip World Congress on Artificial Vision (plenary), Detroit Institute of Ophthalmolo | ogy Sep 2017 |
| T7 Cluster of Excellence in Cognitive Interaction Technology (CITEC), Bielefeld University, Germany | Aug 2017 |
| T6 Center for Perceptual Systems, University of Texas, Austin, TX | Jul 2017 |
| T5 UW Medicine Eye Institute, University of Washington, Seattle, WA | Feb 2017 |
| T4 Second Sight Medical Products Inc., Sylmar, CA | Nov 2016 |
| T3 Department of Psychology, University of Washington, Seattle, WA | Dec 2015 |
| T2 IBM Research, San Jose, CA | Aug 2015 |
| T1 Qualcomm Technologies Incorporated, San Diego, CA | Nov 2014 |
| | |
| <u>Undergraduate Courses</u> UC2 CS-181: Introduction to Computer Vision, <i>UCSB</i> | W2021 |
| UC2 CS-181: Introduction to Computer Vision, <i>UCSB</i> | W2021 F2020 |
| UC2 CS-181: Introduction to Computer Vision, <i>UCSB</i> | |
| UC2 CS-181: Introduction to Computer Vision, <i>UCSB</i> UC1 PSYCH-130: Sensation & Perception · Vision, <i>UCSB</i> <u>G</u> raduate <u>C</u> ourses | |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures | F2020 W2020, F2021 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB | F2020 W2020, F2023 F2020 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW | F2020 W2020, F2021 F2020 S2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW | F2020 W2020, F2021 F2020 S2019 W2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, U Puget Sound | F2020 W2020, F2023 F2020 S2019 W2019 S2018 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UP USB GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UCI GC2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI | F2020 W2020, F2021 F2020 S2019 W2019 S2018 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UPuget Sound GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI GL1 PSYCH-268A: Computational Neuroscience, undergrad, UCI Tutorials at Conferences | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 F2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UPuget Sound GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI GL1 PSYCH-268A: Computational Neuroscience, undergrad, UCI Tutorials at Conferences | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UPuget Sound GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI GL1 PSYCH-268A: Computational Neuroscience, undergrad, UCI Tutorials at Conferences TC1 Image processing and computer vision with scikit-image, Neurohackademy Graduate Teaching Assistant | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 F2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UPuget Sound GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI GL1 PSYCH-268A: Computational Neuroscience, undergrad, UCI Tutorials at Conferences TC1 Image processing and computer vision with scikit-image, Neurohackademy Graduate Teaching Assistant | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 F2019 |
| UC2 CS-181: Introduction to Computer Vision, UCSB UC1 PSYCH-130: Sensation & Perception · Vision, UCSB Graduate Courses GC1 CS-291A: Bionic Vision, UCSB Selected Guest Lectures GL7 DS-1 (CS-90DA): Data Science Foundations, undergrad, UCSB GL6 PSYCH-508: Core Concepts in Perception, grad, UW GL5 BIOEN-460: Neural Engineering, undergrad, UW GL4 NRSC-490: Advanced Topics in Neuroscience, undergrad, UPuget Sound GL2 CS-171: Introduction to Artificial Intelligence, undergrad, UCI GL1 PSYCH-268A: Computational Neuroscience, undergrad, UCI Tutorials at Conferences TC1 Image processing and computer vision with scikit-image, Neurohackademy | F2020 W2020, F2021 F2020 S2019 W2019 S2018 W2019 F2019 |

Michael Beyeler CV

Teaching Publications

TP5 M Gevorgyan, A Mamikonyan, M Beyeler (2020). OpenCV4 with Python Blueprints, Second Edition. Packt Publishing Ltd., Birmingham, UK, 366 pages, ISBN 978-178980181-1.

- TP4 A Sharma, VR Shrimali, M Beyeler (2019). Machine Learning for OpenCV 4, Second Edition. Packt Publishing Ltd., Birmingham, UK, 420 pages, ISBN 978-178953630-0.
- TP3 M Beyeler (2017). Machine Learning for OpenCV. Packt Publishing Ltd., Birmingham, UK, 382 pages, ISBN 978-178398028-4. Also available in Korean, Japanese, and as a video course. [Code]
- TP2 J Howse, P Joshi, M Beyeler (2016). OpenCV: Computer Vision Projects with Python. Packt Publishing Ltd., Birmingham, UK, 558 pages, ISBN 978-178712549-0.
- TP1 M Beyeler (2015). OpenCV with Python Blueprints. Packt Publishing Ltd., Birmingham, UK, 230 pages, ISBN 978-178528269-0. [Code]

| SCIENCE COMMUNICATION & PUBLIC OUTREACH | |
|--|----------------|
| Public Lectures PL1 UCSB Open House (formerly 'Spring Insight'), virtual lecture, UCSB | 2020 |
| ET OCOD Open Flouse (formerly Spring maight), virtual fecture, OCOD | 2020 |
| <u>M</u> edia <u>C</u> overage | |
| MC4 Building the bionic eyewith car tech?, PCMag | 2021 |
| MC3 Interview with Dr. Beyeler, SciSection Media Group, Ontario, Canada | 2020 |
| MC2 Reverse engineering the brain: "fooling" the mind to see, Convergence Magazine, UCSE | |
| MC1 Restoring vision with bionic eyes: no longer science fiction, PCMag | 2019 |
| <u>P</u> anel <u>s</u> | |
| PS1 An Evening with Neuroscience, <i>UW</i> | 2019 |
| Documentary & <u>V</u> ideo <u>Appearances</u> | |
| /A2 AM AI, GTC 2021, <i>NVIDIA, Santa Clara, CA</i> | 2021 |
| 'A1 Made with Android, Google Developers, Mountain View, CA | 2015 |
| Community Involvement & Public Outreach | |
| CI6 Competition judge: SBHacks VI Hackathon, UCSB | 2020 - 2021 |
| CI5 Competition judge: US Congressional App Challenge, Washington, DC | 2019 - 2020 |
| CI4 Outreach & fundraising: Lighthouse Foundation for the Blind, Seattle, WA | 2018 |
| CI3 Neuronline community leader, Society for Neuroscience (SfN) | 2016 - 2017 |
| CI2 Student volunteer, IEEE Robotics & Automation Society (RAS) | 2014 - 2016 |
| CI1 Lab tour leader: Mathobotix "Bytes and Bots" K-12 Summer Camp, UCI | 2013, 2014 |
| PROFESSIONAL ASSOCIATIONS | |
| · Member: IEEE Engineering in Medicine & Biology Society (EMBS) | |
| · Member: Association for Computing Machinery (ACM) | 2019 – present |
| · Member: Organization for Computational Neurosciences (OCNS) | 2018 – present |
| · Member: Association for Research in Vision & Ophthalmology (ARVO) | 2018 – present |
| · Member: Vision Sciences Society (VSS) | 2017 – present |
| · Member: Society for Neuroscience (SfN) | 2013 – present |
| - Neuronline Community Leader, 2016 – 2017 | • |
| · Member: IEEE Robotics & Automation Society (RAS) | 2014 - 2016 |
| - Student Volunteer, 2014 – 2016 | |

REJECTIONS & FAILURES

| An attempt to normalize 'failure' in academia. Inspired by: Melanie Stefan (2010), A CV of Failures. <i>Nature</i> 468(467). Legend: TT tenure-track, PD postdoc, PhD grad | |
|--|---|
| Academic Positions Success rate, TT: 3% Tenure-track positions (R1): 17 no answers, 12 explicit rejections, 1 Rockefeller University, Postdoctoral Position: offer declined EPFL Neuroscience Graduate program: rejected | (n=31), PD: 100 % (n=2), PhD: 50 % (n=2) rejection after interview 2019 2016 2013 |
| Professional MICCAI '21 area chair: not selected Next Generation Leaders Council at the Allen Institute for Brain Scie OCNS program committee: invited to apply | Success rate, TT: 25 % (n=4) 2021 nce: not selected 2020 2019 |
| Extramural Grants & Major Awards Office of Naval Research (ONR) Special Notice: invited for full proposed SONY Focused Research Award: not awarded, role: co-Pl Chan Zuckerberg Institute (CZI) Essential Open Source Software: not National Science Foundation (NSF) NeuroNex: invited for full proposed ADSA seed grant: finalist, role: co-Pl Burroughs Wellcome Award at the Scientific Interface (CASI): invited | 2021 st awarded, role: PI 2020 sal, role: co-PI 2020 2019 |
| Fellowships & Travel Awards Success rate, TT: 33 % Microsoft Research Faculty Fellowship: not awarded IJCNN Travel Award: not awarded NVIDIA Graduate Fellowship: not awarded Microsoft Research Fellowship: not awarded | 2021 2015 2013, 2014, 2015 2013 |
| Workshops · VSS workshop proposal: rejected | Success rate, PD: 50 % (n=2) 2019 |
| Scientific Peer Review J8, Sci Rep: desk-rejected from 5 journals J7, Front Neurosci: desk-rejected from 1 journal J6, PLOS Comp Bio: desk-rejected from 3 journals COSYNE abstract: rejected | 2018 2018 2017 2015, 2018 |