CIANA E. DEVEAU

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EDUCATION

BROWN UNIVERSITY *PROVIDENCE, RI* SEPT 2020 – PRESENT.
PHD CANDIDATE

- **Ph.D. Neuroscience**
- GPA: 4.0

UNIVERSITY OF VIRGINIA *CHARLOTTESVILLE, VA* AUG 2014 – MAY 2018
UNDERGRADUATE STUDENT

- **B.A. Biology and French** | Certificate: McIntire Business Institute

FOUNDATION FOR ADVANCED EDUCATION IN THE SCIENCES GRADUATE SCHOOL *BETHESDA, MD* 2019-2022
COURSES: Advanced Applications of Artificial Intelligence**,** Applied Machine Learning with Python**,** Intro to Python

RESEARCH & PROFESSIONAL EXPERIENCE

NATIONAL INSTITUTE OF MENTAL HEALTH, NIH *BETHESDA, MD* MAY 2021 – PRESENT
GRADUATE STUDENT, *SUPERVISOR: DR. MARK HISTED*

- Probe and interpret how local recurrent circuits transform sensory inputs into behavioral outputs
- Design and execute carefully designed two-photon holographic stimulation and imaging experiments
- Develop artificial neural network models for comparative interpretation
- Analyze and visualize neural and behavioral datasets using Python (Numpy, Scipy, Matplotlib, etc.)
- Generate analysis pipelines in Jupyter Notebook managed through GitHub for lab-wide distribution
- Present work and facilitate discussions at major neuroscience conferences

MARINE BIOLOGICAL LABORATORY, MBL *WOODS HOLE, MA* AUG 2024
BRAINS MINDS MACHINES STUDENT, *DIRECTORS: DR. GABRIEL KREIMAN & DR. BORIS KATZ*

- Developed novel methods to analyze information processing patterns in the brain
- Designed and implemented a sparse autoencoder to disentangle neural responses to complex stimuli
- Interpreted high dimensional neural representations via feature extraction and dictionary learning
- Examined the theoretical and computational intersection of biological and artificial intelligence
- Advanced ML expertise via implementation of transformer architectures and reinforcement learning algorithms

BROWN UNIVERSITY *PROVIDENCE, RI* JAN 2021 – May 2021
ROTATION STUDENT, *SUPERVISOR: DR. MICHAEL PARADISO*

- Preprocessed and analyzed multi-electrode array recordings from primate V1 and V4
- Performed dimensionality reduction methods to extract latent neural dynamics
- Investigated effects of saccadic movement on neural population dynamics

BROWN UNIVERSITY *PROVIDENCE, RI* SEPT 2020 – JAN 2021
ROTATION STUDENT, *SUPERVISOR: DR. THOMAS SERRE*

- Developed biologically based deep learning models of the ventral visual stream
- Successfully trained a scale invariant model for object recognition on ImageNet
- Enhanced coding skills in PyTorch and Keras.

NEUROLOGICAL DISORDERS AND STROKE, NIH *BETHESDA, MD* JUN 2018 – JULY 2020
POST-BAC FELLOW, *SUPERVISOR: DR. RALPH NELSON*

- Designed and implemented novel electrophysiological experiments investigating defects retinal development
- Created advanced analysis processes using Python, Excel, OriginLab, and GraphPad Prism
- Mentored a summer intern in 2018 and 2019 contributing to the achievement of two poster awards

UNIVERSITY OF VIRGINIA SCHOOL OF MEDICINE *CHARLOTTESVILLE, VA* JAN 2015– MAY 2018
UNDERGRADUATE RESEARCH ASSISTANT, *SUPERVISOR: DR. ROGER ABOUNADER*

- Discovered compensatory pathways of MET inhibitor-resistance in glioblastoma
- Identified new therapeutic drug combinations to overcome resistance
- Conducted transfections, cell culture, qPCR, cloning, RNA extraction, lysate extraction, and Western Blots

LEADERSHIP EXPERIENCES

STUDENT REPRESENTATIVE *BETHESDA, MD* JAN 2023 – PRESENT
CO-LEADER

- Organized biweekly program seminars for student research presentations
- Led end-to-end planning and execution of department-wide graduate student retreat
- Coordinated logistics, programming, and budgeting for recruitment weekends
- Bridged communication between administration and student body
- Mentored students on academic coursework, research methodology, and professional development

NIH SUMMER JOURNAL CLUB *BETHESDA, MD* JUNE 2022 – JULY 2022
CO-LEADER

- Lead 16 summer interns in a journal club on decision-making in the brain
- Created and presented multiple lectures to provide background for the literature
- Selected and organized literature for discussion along with prepared discussion points

POST-BAC SOCCER CLUB *BETHESDA, MD* AUG 2018 – MARCH 2020
CO-FOUNDER

- Assembled post-bacs once a week for pick-up soccer games
- Managed equipment such as goals, cones, balls, and pinnies
- Organized additional events for networking and career growth

RELAY FOR LIFE *CHARLOTTESVILLE, VA* AUG 2014 – MAY 2018
EXECUTIVE CHAIR & TEAM CAPTAIN

- Raised $7,000 individually; achieved Relay for Life All-Star Club status
- Led a committee of 20 students to promote recruitment and funding
- Marketed and promoted UVA Relay for Life through seven sponsored events
- Recruited 150 teams, each with at least 10 members

CHI OMEGA SORORITY *CHARLOTTESVILLE, VA* JAN 2015 – MAY 2018
RECRUITMENT ASSISTANT AND MEMBER

- Organized and planned formal recruitment for 200 members
- Acquired support from support from local, small businesses for Make a Wish Foundation philanthropy

COMMUNITY OUTREACH

STEM IN YOUR HOOD *WASHINGTON D.C.* JAN 2019 – JULY 2020
MATH AND SCIENCE TUTOR

- Assisted students from 5^{th}-12^{th} grade from underserved communities
- Tutored in math and science subjects, prepared students for exams, and provided helpful tips for success
- Provided additional support through College Bound to equip students with resources to attend college

SOCA (SOCCER ORGANIZATION CHARLOTTESVILLE AREA) *CHARLOTTESVILLE, VA* 2015 – 2016
HEAD COACH

- Trained 14 players on U-14 team in technique and game strategy twice a week
- Liaison between the organization, players, and families

PUBLICATIONS AND PRESENTATIONS

PUBLICATIONS

Ciana E Deveau*, Zhishang Zhou*, Paul K LaFosse, Yanting Deng, and Mark H Histed. Recurrent cortical networks encode natural sensory statistics via sequence filtering. *bioRxiv*. 2024

Bradley Akitake*, Hannah M Douglas*, Paul K LaFosse, **Ciana E Deveau**, Anna J Li, LN Ryan, Sam P Duffy, Zhishang Zhou, Yanting Deng, Mark H Histed. Amplified cortical neural responses as animals learn to use novel activity patterns. *Current Biology*. 2023

Chuanyu Guo, **Ciana Deveau**, Cen Zhang, Ralph Nelson, and Xiangyun Wei. Zebrafish Crb1, Localizing Uniquely to the Cell Membranes around Cone Photoreceptor Axonemes, Alleviates Light Damage to Photoreceptors and Modulates Cones' Light. *Journal of Neuroscience.* 2020

Ciana Deveau, Xiaodong Jiao, Sachihiro Suzuki, Asha Krishnakumar, Takeshi Yoshimatsu, J Fielding Hetjmancik, Ralph F Nelson. Thyroid hormone receptor beta mutations alter photoreceptor development and function in *Danio rerio* (zebrafish). *PLOS Genetics*. 2020

Ying Zhang, Collin Dube, Myron Gibert, Nichola Cruickshanks, Baomin Wang, Maeve Coughlan, Yanzhi Yang, Initha Setiady, **Ciana Deveau,** Karim Saoud, Cassandra Grello, Madison Oxford, Fang Yuan, Roger Abounader. The p53 pathway in glioblastoma. *Cancers.* 2018

Nichola Cruickshanks Ying Zhang, Sarah Hatef, Myron Gibert, Fang Yuan, Madison Oxford, Cassandra M Grello, Mary Pahuski, Collin Dube, Fadila Guessous, Baomin Wang, **Ciana Deveau**, Karim Saoud, Rosa I Gallagher, Julia D. Wulfkuhle, David Schiff, See-Chun Phan, Emanuel F. Petricoin. Discovery and therapeutic exploitation of mechanisms of resistance to MET inhibitors in glioblastoma. *Clinical Cancer Research.* 2018

ORAL PRESENTATIONS

Recurrent cortical networks encode natural sensory statistics via sequence filtering, BRAIN NeuroAI Workshop, Bethesda, MD November 2024

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Bernstein Conference on Computational Neuroscience, Berlin, Germany October 2023

- One of six selected Contributed Talks for an audience of 600 scientists

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, NIMH Training Day, Bethesda, MD September 2022

POSTER PRESENTATIONS

Recurrent cortical networks encode natural sensory statistics via sequence filtering, BRAIN NeuroAI Workshop, Bethesda, MD November 2024

Active filtering of sequences of neural activity by recurrent circuits of sensory cortex, Sculpted Light in the Brain Conference, Paris, France June 2024

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Cosyne, Lisbon, Portugal March 2024

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Society for Neuroscience, Washington, DC November 2023

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Lake Conference on Neural Coding and Dynamics, Seattle, WA September 2023

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Society for Neuroscience, San Diego, CA November 2022

Selective amplification of sequences of neural activity by recurrent circuits of visual cortex, Sculpted Light in the Brain Conference, Boston, MA June 2022

Determining V1's influence in decision-making by photostimulation of sensory and choice neurons during behavior, NIH Graduate Student Research Symposium, Virtual, February 2022

Trβ2 mutant zebrafish exhibit altered physiological function in the inner retina, NIH Postbac Poster Day, Bethesda, MD, April 2020

Trβ2 mutant adult zebrafish have altered photoreception and cone morphology, Mid-Atlantic Region Zebrafish Conference, Bethesda, MD, November 2019

Alterations in photoreceptor signals due to thyroid hormone receptor beta mutations are present in larval and adult zebrafish, Society for Neuroscience, Chicago, IL, October 2019

Thyroid hormone receptor beta mutations alter photoreceptors in larval and adult zebrafish, NINDS Training Day, Bethesda, MD, June 2019

Thyroxin beta-2 receptor mutations alter or eliminate the signals of long-wavelength cones in zebrafish retina, Association for Research in Vision and Ophthalmology**,** Vancouver, BC, April 2019

Thyroxin beta-2 receptor mutations alter or eliminate the signals of long-wavelength cones in zebrafish retina, Mid-Atlantic Region Zebrafish Conference, Baltimore, MD, April 2019

The effect of EGFR-AS1 on glioblastoma cell lines, Katz Symposium, University of Virginia, Charlottesville, VA, December 2017

The effect of EGFR-AS1 on glioblastoma cell lines, Katz Symposium, University of Virginia, Charlottesville, VA, May 2017

AWARDS

2024 BRAIN NeuroAI Early-Career Scholar Honoree

2024 Sculpted Light in the Brain Travel Award

2023-2024 Robin Chemers Neustein Graduate Fellowship

2022 NIH Graduate Student Research Symposium Travel Award

2022 BRAIN Initiative Meeting Trainee Highlight Award Honorable Mention

PROFESSIONAL AFFILIATIONS

Society for Neuroscience Member APR 2019 - PRESENT