

CURRICULUM VITAE

Robert Bain

CORRESPONDENCE

Address: 6258 Adobe Circle South
Irvine, CA 92617
Email: rkbain@uci.edu
Website: rkbain.com

EDUCATION

University of California, Irvine

Doctor of Science, Ongoing

- Major: Cognitive Neuroscience
GPA: 4.0

Oregon State University

Masters of Science, 2022

- Major: Artificial Intelligence
GPA: 3.6

Oregon State University

Bachelors of Science, 2016

- Focus: Pre-Medicine
- Major: Biology
GPA: 3.7
- Minor: Chemistry
GPA: 4.0

Portland Community College

Associates Degree, 2017

- Focus: Computer Science
GPA: 3.6

RESEARCH

Cognitive Anteater Robotics Lab

Aug. 2022 – Present

- Created a github-based continuous integration development platform for [CARLsim6](#), our lab's GPU accelerated spiking neural network simulator written in C++ and CUDA.
- Programmed a Toyota Human Support Robot (HSR) for indoor [autonomous navigation](#).
- Developed a low-power spiking neural network for outdoor [autonomous navigation](#) ran on a ClearPath Jackal robot.
- Researched biologically plausible computational models of [vision](#), [learning](#), and [memory](#).

GFR's Autonomous Vehicle Team

Nov. 2019 – Sept. 2021

- Engineered several realtime 3D object detector pipelines that ran on small compute platforms.
- Trained feedforward and recurrent DNNs. Used classical CV methods as well like homography, Perspective-n-Point, etc.
- Mentored undergraduate students on their capstone projects.

DARPA Machine Common Sense

Oct. 2020 – July 2021

- Created AI systems meant to understand theory of mind, intuit gravity, and perform 3D task and motion planning at a level of competence comparable to human infants.
- My code took 1st place in a competition against groups at MIT, Harvard, Berkeley, and Stanford.
- Collaborated with UoU roboticists and NYU psychologists.

EMPLOYMENT

Lead Software Developer

April 2018 – March 2020

Northwest Media Inc. – Eugene, Oregon

- Worked on a software as a service website with 150,000 users and several multi-million dollar state contracts.
- Coded custom reporting for the administrators of California's Department of Health Services. Led the conversion of 68 online interactive foster parent training courses from Flash to HTML5.
- Trained and managed two junior developers, and led regular programming team meetings.

Full Stack Web Developer

January – April 2018

Consultant – Eugene, Oregon

- Developed a website for Cascadia Prepared about the Northwest's next large earthquake.
- Produced an advertising web page for Alignment Ventures LLC.

Certified Nursing Assistant

2011 – 2018

- *Express Healthcare* in Eugene, Oregon. Part Time
- *Oregon Health & Science University* in Portland, Oregon. Full Time
- *Friendsview* in Newberg, Oregon. Full Time

Dec. 2017 – March 2018

Oct. 2015 – July 2017

June 2011 – Sept. 2015

TEACHING EXPERIENCE

2022 – Present

Department of Cognitive Science,
University of California, Irvine

Teaching assistant for:

- Computational Modeling of Behavior
- Neuroscience of Perception
- Self and Society

2013 – 2014

Department of Chemistry,
Oregon State University

Teaching assistant for:

- General Chemistry I
- General Chemistry II

ACADEMIC PAPERS

IJCNN:

1. Espino, H., Bain, R., and Krichmar, J. L. (2023). Selective Memory Replay Improves Exploration in a Spiking Wavefront Planner. doi: [10.1109/IJCNN54540.2023.10191940](https://doi.org/10.1109/IJCNN54540.2023.10191940).

Arxiv:

1. Bain, R. (2022). The role of biology in deep learning. Retrieved from <http://arxiv.org/abs/2209.04425>
2. Bain, Robert & Festa, Andrew & Lee, Ga & Zhang, Andy. (2022). Wittgenstein's Philosophy of Language The Philosophical Origins of Modern NLP Thinking. rkbain.com/NLP
3. Lally, A., Bain, R., & Alotaibi, M. (2021). ePose: Let's Make EfficientPose More Generally Applicable. Retrieved from <http://arxiv.org/abs/2111.15114>
4. Bain, R. (2021). Visualizing the loss landscape of winning lottery tickets. Retrieved from <http://arxiv.org/abs/2112.08538>
5. Bain, R., Tokarev, M., Kothari, H., & Damineni, R. (2021). LossPlot: A better way to visualize loss landscapes. Retrieved from <http://arxiv.org/abs/2111.15133>

PORTFOLIO

rkbain.com

Nov. 2017 – Present

- Web portfolio of personal, professional, and school projects. Links to github, LinkedIn, etc