Bradly Alicea

Email:
bradly.alicea@outlook.com, balicea@openworm.org
Website:
http://bradly-alicea.weebly.com

2020-present   Open-source Community Manager, Rokwire Initiative (https://rokwire.org/).

Description. Manager of open-source community for a campus mobile application. Duties include creating documentation, instruction in version-control techniques, technical demos, building open-source computational resources supervising contributor/student intern activities, and moderating video calls/discussion channels.

2014-present Senior Contributor and Community Development, OpenWorm Foundation (http://www.openworm.org).

Description. Major contributor to an open-source organization committed to building the first virtual organism. Duties include project leader of **DevoWorm** (computational developmental biology of the nematode *C. elegans*), member of the Community committee, and leader of several educational initiatives.

2014-present Head Scientist and Founder, Orthogonal Research and Education Laboratory.
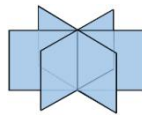
Description. An independent research organization focused on basic research, statistical analysis, and computational modeling. Directing the organizational research and education agenda. Current projects include the Saturday Morning NeuroSim series, **Reconstructing Cybernetics**, and **Representational Brains and Phenotypes** (development and learning in computational agents).

January-May 2019   Open   Leader   (OL7),   Mozilla   Foundation. (https://foundation.mozilla.org/en/opportunity/mozilla-open-leaders/).

Description. Participant in the Open Leaders Program (OL7), where I learned to manage virtual distributed projects in an open fashion. Project: OpenWorm/DevoWorm Curriculum: https://tinyurl.com/y2w2bkv7

January 2018-January 2019 Ambassador, eLife Early Career Advisory program. (https://elifesciences.org/inside-elife/912b0679/early-career-advisory-group-elife-welcomes-150-ambassadors-of-good-practice-in-science).


Description. Collaborative research and efforts in promoting and Open Science, Meta-science, and Reproducibility. Initiatives: Reproducibility for Everybody (http://tiny.cc/g4hu4y) and Data Reuse (https://data-reuse.weebly.com/).

November 2014-March 2016 Postdoctoral Work, Schroeder Lab, University of Illinois Urbana-Champaign.

Description. Research in the areas of Evolution, Developmental Biology, and Neurobiology using the nematode *C. elegans*.

May 2009-January 2014 PhD and Postdoctoral work in Cell/Molecular and Quantitative Biology. Michigan State University, East Lansing, MI. Thesis title: **Reprogramming to the nervous system: a computational and candidate gene approach.** ProQuest/MMI.
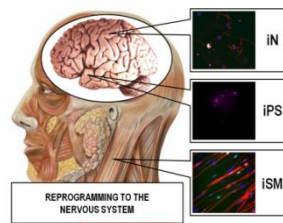

Description. Research involving the fundamental properties, cellular mechanisms, and applications of cellular plasticity and artificially-induced neuronal cells (neurons and muscle).

January 2011-August 2013 Technology commercialization analyst, MSU Technologies, East Lansing, MI. Assessment of technological innovations in terms of marketability and start-up potential. Areas of expertise: computational biology, nanotechnology, robotics.


September 2003-May 2009 PhD specialization in Cognitive Science (Computing and Cognitive Neuroscience). Media Interface and Network Design (MIND) Lab, Michigan State University, East Lansing, MI. Thesis topic: **Augmented Cognition, Neuromechanics, and Adaptive Variation in Virtual Environments.**
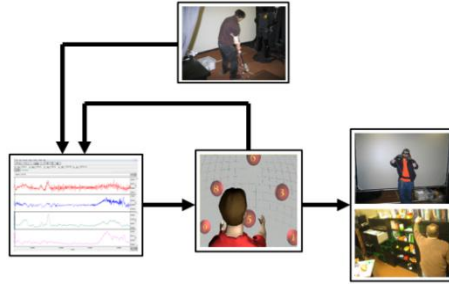
Description: Application of kinematic, behavioral, and electrophysiological measurements to a host of problems at the intersection of virtual environments and human performance.

August 1999-August 2002 Masters in Anthropology and Zoology. Mulligan Human Genetics Lab, Department of Anthropology, University of Florida, Gainesville, FL. Thesis title: **Evaluating Intraspecific Variation and Interspecific Diversity: comparing humans, non-human Primates, and fish species.** arXiv Repository, arXiv:0807.3350v1 [q-bio.PE, q-bio.QM]
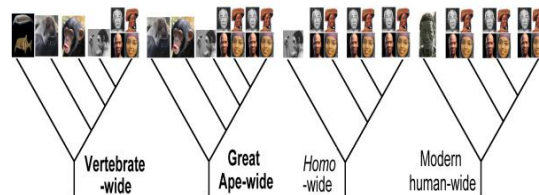
Description: research on comparative taxonomic, demographic, and molecular variance.

1997   Bachelors in Anthropology. Michigan State University, East Lansing, MI.

Review Publications, Book Reviews, and Editorials

Auer, S., Haelterman, N., Weissgerber, T., Erlich, J., Susilaradeya, D., Julkowska, M., Gazda, M., Abitua, A., Niraulu, A., Shah, A., Clyburne-Sherin, A., Guiquel, B., Alicea, B., LaManna, C., Ganguly, D., Perkins, E.J., Jambor, H., Li, I., Tsang, J., Kamens, J., Teytelman, L., Paul, M., Phuyal, S., Schmelling, N., Crisp, P., Sarabipour S., Roy, S., Bachle, S., Tran, T., Ford, T., Steeves, V., Ilangovan, V., Schwessinger, B., and Jadavji, N.   Reproducibility for everyone: a community-led initiative with global reach in reproducible research training. *eLife*, 10, e64719 (2021).

't Hart, B.M. **et.al** (156 co-authors).   Neuromatch Academy: a 3-week, online summer school in computational neuroscience. *Journal of Open Source Education*, 4(44), 118 (2022).

Igamberdiev, A.U., Gordon, R., **Alicea, B.**, Cherdantsev, V.G. Editorial. Special Issue: Computational, Theoretical, and Experimental Approaches to Morphogenesis. *BioSystems*, 173, 1-3 (2018).

Sarma, G.P., Lee, C-W., Portegys, T., Ghayoomie, V., Jacobs, T., **Alicea, B.**, Cantarelli, M., Currie, M., Gerkin, R.C., Gingell, S., Gleeson, P., Gordon, R., Hasani, R.M., Idili, G., Khayrulin, S., Lung, D., Palyanov, A., Watts, M., Larson, S.D.   OpenWorm: overview and recent advances in integrative biological simulation of *Caenorhabditis elegans*. *Philosophical Transactions of the Royal Society B*, 373, 20170382 (2018).

Alicea, B.   An Integrative Introduction to Human Augmentation Science. *arXiv,* 1804.10521 [q-bio.NC, cs.HC] (2018).

Alicea, B.   The Long Road to Theoretical Synthesis: Review of "Embryogenesis Explained". *International Journal of Developmental Biology*, 61(1-3) (2017).

Bohil, C., **Alicea, B.**, and Biocca, F.   Virtual Reality in Neuroscience Research and Therapy**.** *Nature Reviews Neuroscience*, 12, 752-762 (2011).

Selected Empirical Papers

Kulkarni, H. and **Alicea, B.**   Sentiment Progression based Searching and Indexing of Literary Textual Artefacts. *Lecture Notes in Computer Science*, 18201, 264-271 (2021).

Jambor, H., Antonietti, A., **Alicea, B.**, Audisio, T.L., Auer, S., Bhardwaj, V., Burgess, S.J., Ferling, I., Gazda, M.A., Hoeppner, L.H., Ilangovan, V., Lo, H., Olson, M., Mohamed, S.Y., Sarabipour, S., Varma, A., Walavalkar, K., Wissink, E., and Weissgerber, T.L. Creating Clear and Informative Image-based Figures for Scientific Publications. *PLoS Biology*, 19(3), e3001161 (2021).

Alicea, B., Parent, J., and Singh, U. Periodicity in the Embryo: emergence of order in space, diffusion of order in time. *Biosystems*, 104405 (2021).

Alicea, B., Gordon, R., and Portegys, T.E. Data-theoretical Synthesis of the Early Developmental Process. *Neuroinformatics,* doi:10.1007/s12021-020-09508-1. (SI: NeuroCommons). (2021).

Alicea, B.   Raising the Connectome: the emergence of neuronal activity and behavior in *Caenorhabditis elegans*. *Frontiers in Cellular Neuroscience,* 14, 524791. (2020).

Kulkarni, H. and **Alicea, B.** Cultural, Emotional, and Associative Traits to Determine Literary Inclination. *PsyArXiv*, doi:10.31234/osf.io/4xahc (2020).

Kulkarni, H. and **Alicea, B.** Cultural association based on machine learning for team formation. *arXiv*, 1908.00234 (2019).

Alicea, B., Portegys, T.E., Gordon, D., and Gordon, R.   Morphogenetic processes as data: Quantitative structure in the *Drosophila* eye imaginal disc.. *BioSystems*, 173, 256-265 (2018).

Alicea, B., and Gordon, R. Cell Differentiation Processes as Spatial Networks: identifying four-dimensional structure in embryogenesis. *BioSystems*, 173, 235-246 (2018).

Weber, R., **Alicea, B.**, Huskey, R., and Mathiak, K.   Network Dynamics of Attention During a Naturalistic Behavioral Paradigm. *Frontiers in Human Neuroscience*, doi:10.3389/fnhum.2018.00182 (2018).

Alicea, B.   The Emergent Connectome in *Caenorhabditis elegans* Embryogenesis. *BioSystems*, 173, 247-255 (2017).

Alicea, B. and Gordon, R.   Quantifying mosaic development: towards an Evo-Devo Postmodern Synthesis via differentiation trees of embryos [invited]. *Biology*, 5(3), 33 (SI: Beyond the Modern Evolutionary Synthesis: what have we missed?). (2016).

Alicea, B. Evolution in Eggs and Phases: experimental selection on fecundity and reproductive timing in *Caenorhabditis elegans*. *Royal Society Open Science*, 3, 160496. doi:10.1098/rsos.160496 (2016).

Alicea, B., McGrew, S., Gordon, R., Larson, S., Warrington, T., and Watts, M. DevoWorm: differentiation waves and computation in *C. elegans* embryogenesis. *bioRxiv,* doi:10.1101/009993 (2014).

Alicea, B., Murthy, S., Keaton, S.A., Cobbett, P., Cibelli, J.B., and Suhr, S.T. Defining phenotypic respecification diversity using multiple cell lines and reprogramming regimens. *Stem Cells and Development*, 22(19), 2641-2654 (2013).

Alicea, B. Performance Augmentation in Hybrid Systems: techniques and experiment. *arXiv*, 0810.4629 [q-bio.NC, q-bio.QM] (2008).

Selected Theoretical Papers

Alicea, B., Cialfi, D., Lim, A., and Parent, J. Gibsonian Information: a new approach to quantitative information. In "Biologically Inspired Cognitive Architectures". *Studies in Computational Intelligence*, 1032, 2 (2022).

Alicea, B., Yuan, C. Complex Temporal Biology: towards a unified multi-scale approach to predict the flow of information. *Integrative and Comparative Biology*, 61(6), 2075–2081 (2021).

Alicea, B., Cialfi, D., Lim, A., Parent, J. Allostasis Machines: a model for understanding internal states and technological environments. Emergent Interaction workshop, SIGCHI (2021).

Alicea, B. Developmental Incongruity as a Dynamical Representation of Heterochrony. *bioRxiv*, doi:10.1101/2020.07.31.231456 (2020).

Dvoretskii, S., Gong, Z., Gupta, A., Parent, J., and **Alicea, B.** Braitenberg Vehicles as Developmental Neurosimulation. *arXiv*, 2003.07689 (2020).

Stone, R., Portegys, T., Mikhailovsky, G., and **Alicea, B.** Origins of the Embryo: self-organization through cybernetic regulation. *BioSystems*, 173, 73-82 (2018).

Alicea, B. Animal-oriented Virtual Environments: illusion, dilation, and discovery. *F1000 Research*, 3, 202 (2015).

Alicea, B. and Gordon, R. Toy Models for Macroevolutionary Patterns and Trends. *BioSystems,* 122, 25-37 (2014).

Alicea, B. Contextual Geometric Structures: modeling the fundamental components of cultural behavior. *Proceedings of Artificial Life*, 13, 147-154 (2012).

Alicea, B. Towards a theory of human intraspecific variation for ergonomics and human modeling. *Society for Automotive Engineering (SAE) Digital Human Modeling*, #2007-01-2461 (2007).

Alicea, B. Broad-Spectrum Mitigation and the Cognitive Neurobiological Interface: considering biological rhythms in Augmented Cognition. *Proceedings of the Human Factors and Ergonomics Society,* 50(16), 1629-1633 (2006).

Book Chapters

Alicea, B., Gordon, R., Harbich, T., Singh, U., Singh, A., and Varma, V. Towards a Digital Diatom: image processing and deep learning analysis of *Bacillaria paradoxa* dynamic morphology. *Diatom Gliding Motility* (Chapter 10), S.A. Cohn, K.M. Manoylov, and R. Gordon eds. Scrivener, New York (2021).

Alicea, B.   Virtual Reality for Communication Neuroscience. *Handbook of Communication Neuroscience* (Chapter 32), K. Floyd and R. Weber eds. Routledge Press (2020).

Portegys, T., Pascualy, G., Gordon, R., McGrew, S., and **Alicea, B.**   Morphozoic: cellular automata with nested neighborhoods as a novel representation for morphogenesis. In "*Multi-Agent Based Simulations Applied to Biological and Environmental Systems"*. D.F. Adamatti, ed. IGI Global, Philadelphia (2016).

Alicea, B. and Cibelli, J.B. Comparing indirect-derived ES cells and directly-derived iPS cells. In "*Principles of Cloning"*. Elsevier, Amsterdam (2013).

Bohil, C., Owen, C.B., Jeong, E.J., **Alicea, B.**, and Biocca, F. Virtual Reality and Presence. In "21rst Century Communication: a reference book". Sage Publications, Washington, D.C (2009).

Workshops and Conferences (Organizer or Co-organizer)

"Rokwire Lecture Series". Siebel Center for Design and Virtual. University of Illinois Urbana-Champaign, October-November 2021.

(with A. Lim, J. Parent, and A. Sharma). "Trajectories in Cognitive Science". Discussion Group at CogSci 2021.

(with M. Fumasoni, I. Puebla, Y. Ravichandran, and S. Stryeck). "The past, the present and the future of preprints". ASAPBio, October 19, 2020. Website: http://asapbio.org/preprints-past-present-future

(with T. Weissgerber, A. Abitua, and A. Clyburne-Sherin). "Reproducibility for Everybody". eLife Ambassadors virtual workshop, May 3, 2019. https://zoom.us/recording/play/-hwrcoOnIARmT9D-1TEVG0HPTRdozRcUahHGKLLsi-53PjAU6BWBcbw4Ie4DvULj

(with S. Larson, B. Shih, and C-W. Lee) OpenWorm Open House. Cyberspace, October, 2016. Website: https://www.youtube.com/watch?v=ROoZHLemRAs&list=PL8ACJC0fGE7Ax7Yjj-PIYimZMYToVE6D4

(with I. Berteletti, R. Andresen-Eguiluz, M. Shakiba, and B. Mosby) 6th Annual Society for Postdoctoral Scholars (SOPS) Postdoctoral Research Symposium. Beckman Institute, Urbana, IL. Website: http://sops.beckman.illinois.edu/symposia/

(with L. Grabowski) Hard-to-Define-Events (HTDE) 2012. Held in conjunction with Artificial Life 13, East Lansing, MI. Website: http://syntheticdaisies.blogspot.com/p/htde-workshop-2012.html

Invited Lectures and Presentations

2022   **Reconfigure From All Over: the case of interdisciplinary open-source communities.** FOSDEM, Virtual Lightning talk.

2021   **Generative Divergent Integration as a Theory of the Emergent Connectome.** Advanced Computational Neuroscience Network, Beckman Institute, University of Illinois, Urbana-Champaign, IL.

2019   **Game Theory of Developmental Processes.** Dynamics Days XL Conference, Nice, France and Virtual.

2020   **Open-source Campus.** Fall IT Pro Forum, University of Illinois Urbana-Champaign.

2021   (with J. Parent and A. Risius) **Developmental Model of Intelligence Offloading.** Cognitive Offloading Conference, Virtual.

2021   (with J. Parent) **Meta-brain Models.** IGSS Conference in Agent-based Models, Virtual.

2021   **Growing Open-source Networks.** NetOpen (satellite of Networks conference), Virtual.

2021   **Euler Cycles for Life: developing biological structure using multi-cell networks.** TopoNets (satellite of Networks conference), Virtual.

2021   **Embryo Networks as Generative Divergent Integration.** Networks (NetSci) conference, Virtual.

2021   (with J. Parent). **Charting the Future of Academic Fields with Cultural Evolutionary Trajectories.** Cultural Evolution Society Conference, Sapporo, Japan (virtual).

2021   (with E. Higgs and J. Parent). **Examining Cultural Evolution with Contextual Geometric Structures.** Cultural Evolution Society Conference, Sapporo, Japan (virtual).

2021   **Open Source Communities: why, how, and ethos.** Spring IT Pro Forum, University of Illinois Urbana-Champaign.

2021   (with D. Cialfi, A. Lim, and J. Parent) **Allostasis Machines: a model for understanding internal states and technological environments.** Emergent Interaction workshop, SIGCHI.

2020   **Observer-dependent Models.** Presentation to the *Philosopher's Web Cafe*.

2020   (with R. Chakrabarty, A. Gopi, A. Lim, F. Özçelik, and J. Parent). **Embodied Continual Learning Across Developmental Time Via Developmental Braitenberg Vehicles.** Neuromatch 3 Conference (http://neuromatch.io).

2020   (with A. Gopi, R. Gordon, T. Harbich, J. Parent, A. Singh, and U. Singh). **The Psychophysics of Non-neuronal Cognition.** Neuromatch 3 Conference (http://neuromatch.io).

2020   (with K. Katyal). **Contrast Between Biological and Artificial Neural Networks**. Neuromatch 3 Conference (http://neuromatch.io).

2020   (with S. Dvoretskii, S. Felder, Z. Gong, A. Gupta, and J. Parent). **Developmental Embodied Agents as Meta-brain Models.** DevoNN Workshop, Artificial Life 2020, Montreal (virtual: https://www.irit.fr/devonn/2020/07/13/alicea.html)

2020   **Introduction to Google Summer of Code as Education, Open Advocacy, and Community-building**. Presentation to the *INCF Google Summer of Code Mentors Meeting*.

2020   **Computational Virtuality as a Form of Artificial Intelligence.** Short talk presentation, Neuromatch Conference (http://neuromatch.io).

2020   (with J. Parent). **Epistemological Directories (EDs) for Research Development and Education.** csv,conf v5, Washington, DC (virtual: https://www.crowdcast.io/e/csvconf5-0-session-5).

2020   **Process as Connectivity: towards biology-specific complex networks.** Short Talk presentation, Neuromatch Conference (http://neuromatch.io).

2018   **Process as Connectivity: models of interaction in cellular systems.** Invited Platform Presentation, "Finding your Inner Modeler" (NSF-sponsored workshop), University of Illinois-Chicago.

2017   (with R. Gordon). **The Network Architecture of Embryo Developmental Regulation.** NetSci Conference, Indianapolis, IN.

2017   (with R. Stone and T. Portegys). **Cybernetic Representations of Suboptimal Regulatory Systems**. NetSciReg, Indianapolis, IN.

2015   **The Role of Web 2.0 Tools and Digital Practice in Doing Open-Science**. Webmaster Workshop, University of Illinois Webmasters, Urbana-Champaign, IL.

2015   **DevoWorm: raising the (Open)Worm (with data).** Biocomplexity Institute, Indiana University, Bloomington, IN.

2013   **From Switches to Convolution to Tangled Webs: evolving sub-optimal, subtle biological mechanisms.** Network Frontiers Workshop, Northwestern University, Evanston, IL.

2013   **Adventures in Quasi-Evolution: evolutionary modulus and evolutionary through the looking glass.** BEACON Center, Michigan State University.

2012 **Simulating the Dynamic Regulation of a Cell: Relevance to Cell Reprogramming.** 2nd Midwest Conference of Stem Cell Biology and Therapy, Oakland University, Rochester, MI.

2012 **Advancing Dynamic Models of Cellular Processes (and new ways to fund them).** Levin Lab, Institute for Developmental Biology and Regenerative Medicine, Tufts University.

2012 **Behavioral Engineering and Brain Science in Virtual Reality**. Seminar, Department of Computer Science, Michigan State University.

2007 **Evolving "Physical" Intelligence: physiology, robotics, and computational biology**. Evolving Intelligence Research Group, DevoLab, Department of Computer Science, Michigan State University.

Posters and Tutorials

2022   **Alicea, B.** Game Theory of Developmental Processes. Dynamics Days, Atlanta, GA and virtual.

2020   **Alicea, B.** On Growth, Form, and System Dynamics: Heterochrony as a Complex System. Dynamics Days Digital, Online.

2019   Dvoretskii, S. and **Alicea, B.** Modeling Neural Development with Braitenberg Vehicles. INCF Neuroinformatics Conference, University of Warsaw, Poland.

2019   **Alicea, B.** A New Kind of Developmental Biology. Find Your Inner Modeler III, Birmingham, AL.

2019   **Alicea, B.** Dynamical Representations of Heterochrony and the Developmental Process. Dynamics Days, Evanston, IL.

2016   **Alicea, B.** and Gordon, R. The Network Architecture of Embryo Developmental Regulation. Midwest Regenerative Medicine Meeting, Allerton Conference Center (Hosted by Washington University-St. Louis), Allerton, IL.

2015   **Alicea, B.**, Androwski, R.A., and Schroeder, N.E. An Experimental Evolution Approach to Understanding *C. elegans* Adaptability. International *C. elegans* Conference. Los Angeles, CA.

2015   **Alicea, B.**, Larson, S., McGrew, S., and Gordon, R. DevoWorm: raising the worm on datapoints, trees, and matrices. International *C. elegans* Conference. Los Angeles, CA. *Poster*.

2012   **Alicea, B.** Non-uniform Gene Networks. Symposium on Emerging Topics in Control and Modeling: Networked Systems. Coordinated Science Laboratory, University of Illinois, Urbana-Champaign.

2012   **Alicea, B.** Dynamical Cellular Encodings for Exploring Cellular Reprogramming. Dynamics Days 2012. Baltimore, MD. *Poster*.

2010 **Alicea, B.** Unmatched muscle power: mapping physiological control to virtual world physics. Symposium on Emerging Topics in Control and Modeling: Biomedical Systems. Beckman Institute, University of Illinois Urbana-Champaign.

2010   **Alicea, B.** Emergent Natural Selection for Engineering Living Systems. Early Career Scientists Symposium (ECSS) 2010: Experimental Evolution, University of Michigan.

2010   **Alicea, B.** Dynamical approximation of a reprogramming cell culture. Dynamic Days 2010. Evanston, IL.

2009   **Alicea, B.** Emergent natural selection and the evolution of novel biological surfaces. I2CAM Workshop, Soft Active Materials: from granular rods to flocks, cells, and tissues. Syracuse University.

2008   **Alicea, B.** Fundamental Elements of Muscle-generated Motion: developing a genomic modeling framework. Adaptive Movement and Adaptive Machines (AMAM) 2008, Case Western University, Cleveland, OH.

2008   **Alicea, B.** Environmental switching: characterizing the adaptable range of neuromechanical processes. Adaptive Movement and Adaptive Machines (AMAM) 2008, Case Western University, Cleveland, OH.

2007   **Alicea, B.** Reverse Distributed Computing: doing science experiments in Second Life. Simulation and Second Life Workshop, European Social Simulation Association/Artificial Life Group, Second Life.

2006   **Alicea, B.** and Grabowski, L. From Finding Home to Navigational Primitives: using path-integration and tracking technologies to achieve navigational mitigation. Augmented Cognition International, San Francisco, CA. *Poster*.

2006   **Alicea, B.** "Virtual" work: the D'Alembert principle and upper-body movement in mixed-reality systems. Dynamic Walking 2006, University of Michigan, Ann Arbor, MI.

Media Interviews and Twitter Conferences

2020   Feature by Mariana DeNiz for the paper "Creating Clear and Informative Image-based Figures for Scientific Publications". *PreLights*, https://prelights.biologists.com/highlights/creating-clear-and-informative-image-based-figures-for-scientific-publications/

2020   (with S. Dvoretskii, Z. Gong, J. Parent, and A. Gupta) Developmental Braitenberg Vehicles. *OHBMx*, Talk #44, https://twitter.com/OHBMequinoX/status/1241012923755102212.

2019   Interview with Sarah DeWeerdt for the article "How to map the brain". *Nature*, 571, S6-S8. doi:10.1038/d41586-019-02208-0.

2019   Interview with Rob Schaefer, Revitalized Community Curriculum Breathes New Life into the Webs First Virtual Organism. *Mozilla Open Leaders Medium blog*, May 23.

2019   Meta-brain computational models for representing cultural diversity. *Brain TC*, Talk #139, https://twitter.com/RealBrainTC/status/1106306541148344329.

2012   Interview with Sujata Gupta, Virtual windows on brains at work. *New Scientist*, March 17.

2012   Interview with Rachel Nuwer, Why Scientists are fooling animals with virtual reality. *Popular Mechanics*, April 10.

Mentoring and Advising
* Google Summer of Code student

iSchool Mentorship program, University of Illinois Urbana-Champaign. 1 student in 2021 (Jinal Mehta), 1 student in 2022 (Christian Nnahibue).

Orthogonal Research and Education Laboratory Mentorship Program (co-mentor w/Jesse Parent): 7 students from the University of Albany (2022).

Mentor for Google Summer of Code 2017-2021. In conjunction with the International Neuroinformatic Coordinating Facility (INCF).

Mentor for Neuromatch Academy 2020 (three student projects: "Classifying Working Memory Performance", "Reward-specific activation in prefrontal cortex during a gambling task", "Complexity of Feedback Loops") and 2021 (two student projects: "Mapping artificial neural network to human visual system", "Distinguishing between Mathematics and Linguistic fMRI Networks").

* Ujjwal Singh*, Computer Science student at IIT Delhi, Interested in Machine Learning and Computational Biology (2019-present).

* Asmit Singh, Computer Science student at IIT Delhi, Interested in Machine Learning and Computational Biology (2019).

* Mayukh Deb*, Computer Science student at Amrita Vishwa Vidyapeetham University (India). Interested in Machine Learning and Data Science (2020).

* Ziyi Gong, Neuroscience student at the University of Pittsburgh. Interested in Digital Neuroscience (2019).

* Jesse Parent, Cognitive Science student at SUNY-Albany. Interested in Cybernetics and Social Cognition (2019).

* Vinay Varma*, Computer Science student at Amrita Vishwa Vidyapeetham University (India). Interested in Machine Learning and Computational Biology (2019).

* Stefan Dvoretskii*, Bioinformatics student at Technical University of Munich. Interested in Cognitive Science and Digital Neuroscience (2018-present).

* Hrishikesh Kulkarni, independent academic. Interested in Cognitive and Cultural Computing (2018-present).

* Sam Felder*, Computer Science student at the University of Illinois, Urbana-Champaign, interested in genetic algorithms and software engineering (2018).

* Cheng-Hsun (Jim) Hsueh*, Medical student at National Yang Ming University, interested in cultural evolution (2018).

* Arnab Banerjee*, Computer Science student at University of Pune, interested in Biological Computing and Community-building (2018).

* Siddharth Yadav*, Computer Science student at IIT-New Delhi, interested in Machine Learning and Computational Biology (2017).

* Robert Stone, independent academic. Interested in Cognitive Science and Cybernetics (2014-present).

Fellowships

2003-2007: CDEF Fellowship, Michigan State University (full financial support).

2000: FLAS Fellowship, University of Florida (international study – Rio De Janiero, Brasil).

1999-2002: Grinter Fellowship, University of Florida (partial financial support).

Professional Organizations and Activities

* Current or former member: Institute of Electronics and Electrical Engineers (IEEE), Society for Industrial and Applied Mathematics (SIAM), International Society for Computational Biology (ISCB), and

International Society for Artificial Life (ISAL), Cognitive Science Society (CSS), and Human Factors and Ergonomics Society (HFES).

* Faculty Judge: UURAF (Undergraduate Research Forum), Michigan State University (Spring 2013) and Engineering Open House, University of Illinois-Urbana Champaign (Spring 2022).

* Editor, The Gradient, https://thegradient.pub/. (2020-present).

* Small Development Grant (SDG) committee member, NumFOCUS, https://numfocus.org/

* Special Issue Co-editor for *BioSystems* special issue "*Computational, Theoretical, and Experimental Approaches to Morphogenesis, in memoriam of Lev Beloussov*", 2018.

* President, Society of Postdoctoral Scholars, University of Illinois Urbana-Champaign (2015-2016).

* Journal article referee: *Stem Cells and Development, Brain and Cognition, PLoS One, Human Factors, Human Movement Science, Evolving Systems, Journal of Evolutionary Biology Research, Journal of Parallel and Distributed Computing, Entropy, Multimodal Technologies and Interaction,* and *High-Throughput*. Publons profile: https://publons.com/author/1192281/

* Blog administrator, Synthetic Daisies (http://syntheticdaisies.blogspot.com, 2008-present) and academic website creator/administrator, Annotated Amazonia (bibliography website, 1998-2002).

* Editorial Supervisor, SciNote Science Blog (Fall 2014 – Spring 2015).

* Academic Journal Editorial Staff Assistant, Transforming Anthropology (2001-2002).

* Book chapter (Bio-Communication, University of Chicago, 2013), proposal (The Enculturated Brain, MIT Press, 2010), and book draft (Embryogenesis Explained, World Scientific Press, 2015) reviewer.

* Mentioned in: PLoS One 2014 Reviewer Thank You. PLoS One, 10(2), e0121093 doi:10.1371/journal.pone.0121093 and PLoS ONE 2015 Reviewer Thank You. PLoS One, 11(2), e0150341 doi:10.1371/journal.pone.0150341.

* Academic Conference Program Committee Member (Alife XIII, Alife XIV, and ECAL 2015) and paper referee (Human Factors and Ergonomics Society (HFES); ASME International Mechanical Engineering Congress and Exposition; IEEE Virtual Reality Conference).

* Participant in Professorial Advancement Initiative (PAI), Committee on Institutional Cooperation (2015-2017).

* Certificate earned in "Proven Algorithmic Techniques for Parallel Computing". Virtual School of Computational Science and Engineering (VSCSE), National Center for Supercomputing Applications (NCSA), August 15-19 (2011).

* Certificate earned in "Big Data for Science". Virtual School of Computational Science and Engineering (VSCSE), National Center for Supercomputing Applications (NCSA), July 26-30 (2010).