

Ryan J. Yu

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EDUCATION

Boston University, Boston, MA
Ph.D. Candidate: Computer Science

Expected August 2023
GPA: 3.86/4.0

Colgate University, Hamilton, NY
Major: Computer Science, and Neuroscience

May 2018
Computer Science Major GPA: 3.86/4.0

SKILLS/STRENGTHS

- Programming Languages: Python, Java, C++
- Software: Tensorflow, Pytorch, Matlab, Latex, Microsoft Office
- Relevant Courses: Game Theory, Machine Learning, Deep Learning, Computer Vision, Data Science

COMPUTER SCIENCE RESEARCH EXPERIENCE

Research Scientist, Raytheon BBN, Cambridge, MA.

June 2021 – Jan 2022

- Proposed and developed a novel multiagent agent architecture in which a single neural network learns to play a board game in which it must move a changing number of pieces each turn. Architecture primarily solves issues of exponential action space growth as well as lowers memory usage by only having a single network in the architecture.
- Designed and built a distributed code base from scratch that generates training instances and train agents simultaneously, greatly speeding up the training process.
- Communicated with mentor and team with frequent updates to plan and adjust short- and long-term project goals
- Currently writing and submitting a paper detailing the contributions of the project.

PhD Researcher, *Boston University*, Boston, MA.

September 2018 - Present

- Propose and develop a novel general purpose layer architecture inspired by the importance of time synchronization in biological networks. Current artificial networks do not explicitly incorporate time synchronization, while hyper-realistic biological models, such as spiking neural networks, are difficult to apply in a general setting. New architecture serves as a middle ground between the two extremes.
- Train and assess novel neural network models to produce improved results compared to contemporary real-valued neural networks on multiple data sets. Discovered that proposed models show a statistically significant performance improvement compared to contemporary layer architectures.
- Communicates project progress through weekly remote meetings and quarterly project reports and manages project GitHub repositories to facilitate version control of project code among group members.

PUBLICATIONS

- Yu, R., Wood, A., Cohen, S., Hershcovitch, M., Waddington, D., Chin, P. (2022). Biologically Plausible Complex-Valued Neural Networks and Model Optimization. In: Maglogiannis, I., Iliadis, L., Macintyre, J., Cortez, P. (eds) Artificial Intelligence Applications and Innovations. AIAI 2022. IFIP Advances in Information and Communication Technology, vol 646. Springer, Cham. https://doi.org/10.1007/978-3-031-08333-4_30

RELEVANT TEACHING EXPERIENCE

Introduction to Artificial Intelligence Teaching Fellow, *Boston University*, Boston, MA.

Jan 2023 – Present

- Design and teach a weekly recitation section to provide over eighty undergraduate students with a practical experience for the theory they learned.
- Coordinate in the planning for course trajectory and course material with other teaching fellows and instructors with the goal of improving student understanding of difficult topics.