Booyeon Choi

617-275-9908 | brian.choi@yale.edu

EDUCATION

Yale University   Expected May 2025
Bachelor of Science in Computer Science and Mathematics   *New Haven, CT*
- Cumulative GPA: 4.0/4.0
- Coursework: Distributed Systems, Compilers, Algorithms, Systems Programming, Data Structures, Machine Learning, AI for Games, Linear Algebra, Discrete Mathematics, Probability Theory

EXPERIENCE

Yale Interactive Machines Group   Jan 2022 – Present
Undergraduate Researcher   *New Haven, CT*
- Build original data processing pipelines for social robot navigation in virtual simulation to represent environmental information in graph structure using PyTorch Geometric.
- Propose novel graph distancing method by applying large language models to images of social situations to generate text embeddings.
- Implement message passing graph neural network and custom loss function in PyTorch and use contrastive learning to train foundation model for social situation recognition.
- Train robot controller by building off of the foundation model, improving autonomous navigation performance through increased awareness of human behavior patterns.
- Author social navigation paper to be submitted to Conference on Robot Learning 2023.

Yale Daily News   Oct 2022 – Present
Full Stack Developer   *New Haven, CT*
- Design content management system search page layout in React for easier finding and editing of images.
- Integrate Cloud Firestore with content management system for storage of images with their corresponding articles and captions.
- Implement full text search functionality for images in content management system using Algolia.

DoctorLingo   Mar 2020 – Nov 2020
Front End Developer   *Virtual*
- Selected by lead developer to merge code from 15 other developers to enable faster rollout of new website features.
- Constructed search bars with autocomplete feature using API for more streamlined matching of medical terms.
- Restructured website layout in React to move search functionality onto home page for user convenience.

Columbia Astrophysics Laboratory   Jun 2020 – Aug 2020
Research Intern   *New York City, NY*
- Built various regression models to conduct spectral analyses of the hard X-ray emission from 25 intermediate polars (IPs).
- Calculated mass measurements with smallest error bounds to date for estimation of evolutionary pathways.
- Manipulated magnetic field variable and evaluated degeneracy of parameters in model based on existing estimates of IP behavior to compute bounds for magnetic field measurements.

PROJECTS

Gomoku Artificial Intelligence
- Implement minimax algorithm with alpha-beta pruning to play Gomoku, achieving 60% rate against baseline agent built on baseline minimax algorithm.

AWARDS

- Hahn Scholar - offered to only 15 STEM students in Yale Class of 2025 based on research accomplishments
- USA Computing Olympiad Gold Division Qualifier
- 3-time AIME Qualifier

TECHNICAL SKILLS

Languages: Python, C, C++, Java, JavaScript, HTML/CSS, SQL, Golang, OCaml
Technologies/Frameworks: Tensorflow, PyTorch, GraphQL, React, Git, Firebase