Weijia Xiao

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Availability: July–September 2024

EDUCATION

Northeastern University, Khoury College of Computer Sciences Boston, MA
Candidate for: Bachelor of Science in Computer Science, Concentration in AI *Sept 2022–May 2026(Expected)*
PlusOne Master of Science in Artificial Intelligence *Sept 2026(Expected)–May 2027(Expected)*
GPA: 4.0 / 4.0 **Honors**: Dean's List *(all semesters)*
Courses: Object-Oriented Design, Algorithms (master course, includes Data Structure), Machine Learning and Data Mining 1, Database Design, Game Programming, Computer Systems, Biostatistics

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, SQL, HTML, CSS, Javascript, C#, C, R, Racket
Frameworks & Libraries: PyTorch, torchvision, Keras, Sklearn, Pandas, NumPy, Vue.js
Applications & Systems: Unity, MySQL Workbench, Maya, Git, LaTeX, Linux

PEER-REVIEWED JOURNAL PUBLICATIONS

Xue Zhang*, **Weijia Xiao***, Brent Cochran, Wangxin Xiao. DeEPsnap: human essential gene prediction by integrating multi-omics data. bioRxiv, 2024. DOI: 10.1101/2024.06.20.599958.
*co-first author

Xue Zhang, Wangxin Xiao, **Weijia Xiao**. DeepHE: Accurately predicting human essential genes based on deep learning. PLOS Computational Biology, 2020, 16(9): e1008229. DOI: 10.1371/journal.pcbi.1008229. **Q1, impact factor: 3.8**

EXPERIENCE

Machine Learning Researcher [*Python, PyTorch, Keras*] Jul 2019–Present
- **Proposed a novel snapshot ensemble DNN**, boosted all metrics by **1~3%** from baseline DNN for essential gene prediction; experimented and outperformed **GAT**(Graph Attention Networks), **Random Forest**, **AdaBoost**, and **SVM**(support vector machine)
- Published 1 academic paper in a Q1 (top 25%) peer-reviewed journal in 2020; submitted 1 paper in 2024 (currently in review)

Game Developer [*C#, Unity, Maya | Java, Java Swing | HTML, CSS, Javascript, Vue.js*] Feb 2023–Present
- Produced **five** 2D and 3D games using **Unity**; coded game logic and features using C#; crafted 3D models using Maya, drew and animated 2D arts used in the games; designed UI/UX including user interface, visuals, sounds, and game mechanics
- Programmed **four** puzzle games in **Java**, then redesigned and recreated **three** of them as **browser games** for playing feasibility

AWARDS

Northeastern CS3650 Concurrency Programming Star Apr 2024
- Utilized solid algorithm knowledge to implement a highly performant concurrent Key-Value store/database in Linux using C
- Achieved **>300x** faster than the baseline; speed ranked **2nd** out of 200+ students across sections
- Achieved a perfect score in a large number of **high-concurrency** CRUD tests

PROJECTS

Droplet of Life [*C#, Unity, Pixel Studio*] May 2024–Present
- Leading a team of 3 to develop a 2D-pixel art game; coding game logic and mechanisms in C#; designing game graphics style and game mechanics; creating game assets by drawing and animating pixel art
- Ranked **#11** in mechanics design among **700+** entries and scored a **top 5**-ranked judge rating with the **highest score** in both visual and audio aspects in Pixel Game Jam 2024 (**~10k** professional & student attendees)

Image Semantic Segmentation Model Comparison [*Python, PyTorch, torchvision*] Feb–May 2024
- Prepossessed and augmented 7000+ images and trimap labels of the Oxford-IIIT Pet dataset
- Implemented **logistic regression** and **FCN**(Fully Convolutional Network) using **PyTorch**; curated and adjusted source code from reputable repositories for **U-net** and **DeepLabV3+** models
- Trained, fine-tuned, and well-tested the models; compared performance by pixel accuracy and IoU on the test set
- Investigated the model structures and corresponding papers to gain a deep insight into models for detailed comparison
- Crafted a detailed final report elucidating the dataset analysis, image processing methods, evaluation metrics, model structures, and interpretation of comparison results

Vege'tival [*C#, Unity*] Jan–May 2024
- Produced a well-polished casual first-person shooter 3D game using Unity collaboratively in a small team of 4
- Implemented game logic and features in C#; designed UI/UX including user interface, visuals, sounds, and game mechanics

Shhhhh [*C#, Unity, Maya*] Nov 2023–Present
- Developing a novel first-person 3D horror game using Unity collaboratively in a small team of 6
- Coding game logic and features using C#; crafting complex 3D models involved in the game using Autodesk Maya

Reversi [*Java, Java Swing*] Oct–Dec 2023

- Built a 2-player Reversi game that supports customizing the game through command line configuration, provides customization of board shape, board size, and player type choices
- Formulated 3 types of strategized AI players that play the game automatically following the in-built winning logic

Boston House Sale Prediction [*Python*] Oct–Dec 2023

- Web scraped, preprocessed, and visualized **10,000+** Boston recent year house sale data from a house-selling website
- Constructed and trained machine learning regression models for predicting house sale prices; interpreted the result for aiding house sale and purchase decisions and discovering the recent house market trend in Boston
- Coordinated the division of responsibilities among teammates and managed the timeline by setting goals of progress for each check-in point to ensure the proper completion and delivery of the final presentation and report

Puzzle Games [*Java, HTML, CSS, Javascript, Vue.js*] Feb–Aug 2023

- Designed a maze game using Java, which accepts both playing by arrow keys and automatically searching for a path to the exit using depth-first or breadth-first search algorithms; later added in A* search algorithm in the website version
- Implemented a color-unifying puzzle game using Java; redesigned and created a website version of the game
- Programmed a sequence memorization puzzle game using Java; redesigned and created a website version

EXTRACURRICULAR ACTIVITIES

MIT BWSI Autonomous RACECAR Program Jul–Aug 2020

- Practiced the fundamental knowledge of an autonomous race car and related AI—including Control Systems, Computer Vision, Localization, Planning, and Navigation—to control the movement of a race car
- Collaborated with teammates to build a Python program to control a race car to avoid obstacles and fast-forward
- Placed **1st** in the time trial part race, **2nd** in the final Grand Prix race