Daniel Weiner

Student Researcher

Passionate and research-focused PhD student studying under the guidance of Dr. Raj Korpan at the CUNY Graduate Center in the TIER Lab. Interested in a diverse array of research subjects, all relating back to robotics.

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New York

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TECHNICAL SKILLS

Operating Systems	Windows, Linux, Mac OS, iOS	**Languages**	C++, C, C#, Java, Python, JavaScript, HTML, CSS, MIPS Assembly Language, Lua, Bash/ZSH/Shell, SQL/MySQL, LaTeX
Frameworks/Libraries/APIs/Software	OpenCV, Pandas, NumPy, Scikit-Learn, Matplotlib, TensorFlow, Keras, SciPy, PyTorch, Git, GitHub, Jupyter, Google Cloud, Unity, ROS, SSH	**Skills**	Machine Learning (CV, RL), Deep Learning, Algorithms, Data Structures, Video Game Programming, Game Engine Programming, Calculus, Linear Algebra

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EDUCATION

Computer Science PhD
CUNY Graduate Center, Hunter College

06/2024 - Present

Courses
- Machine Learning
- Algorithms
- Natural Language Processing
- Artificial Intelligence
- Robotics
- Data Mining

Computer Science/Math Minor
CUNY Lehman College

06/2022 - 05/2024   *Bronx, NY - 4.0 GPA*

Courses
- Machine Learning
- Parallel Algorithms and Architecture
- Database Management
- Probability and Statistics
- Deep Learning
- Big Data Analysis in Cloud Computing
- Advanced Algorithms
- Operating Systems

RESEARCH EXPERIENCE

Research Intern
Florida Atlantic University

10/2023 - 06/2024   *West Palm Beach, FL/Remote*

Tasks/Achievements
- Work on research with Professor Jason Hallstrom
- Project relating to Center for Smart StreetScapes (CS3) project from the NSF
- Building a recognition and localization system using in place CCTV cameras to help remove raccoons from the area of West Palm Beach
- Using YOLOv8, OpenCV, and python to build system, paper to be written describing our methods

Contact : Jason Hallstrom - jhallstrom@fau.edu

RESEARCH EXPERIENCE

Amazon SURE Research Intern
Columbia University

05/2023 - 09/2023   *Manhattan, NY*
https://ceal.cs.columbia.edu

Tasks/Achievements
- Work in lab environment with supervising professor and graduate students
- Learned best practices for academic research
- Conducted user studies and analyzed interview transcripts for wants and needs
- Helped develop computer vision system to assist blind low vision (BLV) users in safe navigation of busy city streets
- Contributed to the writing of the poster and paper submissions of the project
- **https://www.engineering.columbia.edu/columbia-amazon-summer-undergraduate-research-experience-program**

Contact : Brian A. Smith - brian@cs.columbia.edu

PUBLICATIONS

Workshop Paper
Hybrid Voting-Based Task Assignment in Role Playing Games
Author(s)
Daniel Weiner, Raj Korpan
03/03/2025
20th Annual ACM/IEEE International Conference on Human-Robot Interaction (HRI 2025)

Introduced VBTA framework in one of its use cases, creating affective, context-sensitive procedurally generated content and controlling autonomous agents in role playing games

Academic Paper
StreetNav: Leveraging Street Cameras to Support Precise Outdoor Navigation for Blind Pedestrians
Author(s)
Gaurav Jain, Basel Hindi, Zihao Zhang, Koushik Srinivasula, Mingyu Xie, Daniel Weiner
09/2023
37th Annual ACM Symposium on User Interface Software and Technology (UIST)

Assisted in building computer vision system which aids BLV users in navigating busy city streets more safely. Conducted user studies with BLV volunteers. Helped analyze data from the system and the user studies. Contributed to the writing of the paper.

Grant Proposal
Audiohaptic Dioramas
Author(s)
Gaurav Jain, Daniel Weiner, Brian A. Smith
TBD
TBD

Built a prototype of the system in Unity. System helps BLV users "see" images. Assisted with testing of prototype. Took processed image data and built a UI that, when interacted with, allowed you to "visualize" the data without sight.

Graduate Thesis
DNP Student Thesis on HIV+ Males
Author(s)
Chichi Nebo, Daniel Weiner
05/2023
Cleaned, analyzed, and visualized the data that was collected by the nurse at her clinic. Helped prove the results of her thesis project, and if her idea to help HIV+ patients had merit.

Dataset
Columbia Statistics Department Apple Dataset
Author(s)
Jonathan L. Auerbach, Hane Lee, Andrew Davison, Daniel Weiner, Yvon Lu, Yuanxi Li, Reihaneh Malekian
09/2023
Project overseen by Jonathan L Auerbach, Andrew Davidson, and Hane Lee. Collected specimens for the dataset. Analyzed and documented statistics of specimens. Measured the quality of produce available in different neighborhoods, across multiple cities, based on socioeconomic factors

PERSONAL PROJECTS

Empirical Hardness of Multi-Agent Pathfinding Instances (12/2024 - Present)
- Extending a paper by Ren et al. titled "Map Connectivity and Empirical Hardness of Grid-based Multi-Agent Pathfinding Problem"
- Built a custom Multi-Agent Pathfinding(MAPF) dataset
- Uses CBS for pathfinding
- Uses Graph Convolutional Networks to determine the difficulty of a MAPF instance

MLH Hackathon 2023 (08/2023 - 08/2023)
- Built diffusion model from scratch using the original papers written on the model and trained on CIFAR10. https://github.com/danwein8/Stable-Diffusion/blob/main/StableDiffusion2.ipynb
- Built a Hugging Face Dreambooth model on top of Stable Diffusion for better results. https://huggingface.co/danwein8/my-dog-training
- Front end enabled users to query the model for different images based on their text.
- CLIP was used for text to image encoding.

DQN Agents (05/2023 - 05/2023)
- Built deep learning agents in Python using TensorFlow. https://github.com/danwein8/Deep-Q-Network-Agents
- Agents learned to beat different types of games using reinforcement learning (Classic control games, then Space Invaders).
- Games with both continuous and discreet action spaces were learned by the agents by using action space wrappers to convert the continuous to discreet.

Video Game Engine (12/2022 - 12/2022)
- Built a game engine from scratch in Java without any libraries or frameworks as part of CMP428 at Lehman.
  https://github.com/danwein8/LunarLanderGame
- Built 2 games with this engine for final project, one solo game, and one group game with 3 other students.
  https://github.com/danwein8/ClassGameEngine

Neural Network (12/2022 - 12/2022)
- Built a neural network class from scratch in Python without any scientific libraries as part of final project for Intro to Machine Learning at Lehman
- https://github.com/danwein8/Neural-Network

MLH Hackathon 2021 (02/2021 - 02/2021)
- Organized and collaborated in a team with 4 club members from OMEGA club as part of a virtual team and made a Valentine's Day themed web application using Flask and SQLite, our project won a prize.

HONOR AWARDS

Summa Cum Laude (05/2024 - 05/2024)
Lehman College
- For maintaining above a 3.85 GPA

Robert T. Craig Memorial Award (05/2024 - 05/2024)
Lehman College
- For academic excellence among Computer Science majors

Presidential Scholar (01/2023 - 05/2023)
Lehman College
- This designation is bestowed upon students who have met all of the qualifications for Dean's List and have exceeded the GPA requirement for Dean's List by earning a 3.9 GPA or higher

Presidential Scholar (08/2022 - 12/2022)
Lehman College
- This designation is bestowed upon students who have met all of the qualifications for Dean's List and have exceeded the GPA requirement for Dean's List by earning a 3.9 GPA or higher

2021-2022 Club of the Year OMEGA Club (09/2021 - 06/2022)
SUNY Weschester Community College
- For having an active membership, adhering to the club mission, and providing a dynamic and meaningful involvement opportunity for students.

Key Award (01/2022 - 05/2022)
SUNY Weschester Community College
- For making consistent and outstanding contributions to the College community by exemplifying characteristics of quality leadership, service, and personal development.

President's List (08/2021 - 12/2021)
SUNY Westchester Community College
- For full time students with a 3.75 term GPA or higher

CERTIFICATES

Machine Learning Specialization Courses - Machine Learning Specialization (04/2023 - 04/2023)
https://coursera.org/verify/specializat ion/PETNPLLHTGMJ

Coursera, DeepMind.AI, Stanford Online – Regression and Classification Certification (03/2023 - 03/2023)
https://coursera.org/verify/Y4ULUZSQ6WNK

CERTIFICATES

Coursera, DeepMind.AI, Stanford Online – Advanced Learning Algorithms Certification (03/2023 - 03/2023)
https://coursera.org/verify/SKDJU8GTJXJN

Coursera, DeepMind.AI, Stanford Online - Unsupervised Learning, Recommenders, Reinforcement Learning (04/2023 - 04/2023)
https://coursera.org/verify/JR9LERQTKHPT

NVIDIA Building Transformer-Based Natural Language Processing Applications (11/2023 - 11/2023)
https://courses.nvidia.com/certificates/ccd03726c1144d1cb2016f234133f009/

NVIDIA Fundamentals of Deep Learning (11/2023 - 11/2023)
https://courses.nvidia.com/certificates/ef1ca388dfb745e7ab46659413bc2bd9/

WORK EXPERIENCE

CS3 Student Leadership Council Member
Lehman College/Columbia University/NSF

10/2023 - Present   *Manhattan, NY/ Remote*

Achievements/Tasks

- Represent Lehman College
- Attend Research Exchange meetings
- Attend Center for Smart StreetScapes meetings
- Interact with other student members from Columbia University, Rutgers, Florida Atlantic University, and University of Central Florida

Contact : Jennifer Laird - Jennifer.Laird@lehman.cuny.edu

Tutor
SUNY Westchester Community College

06/2021 - 06/2022   *Valhalla, NY*

Achievements/Tasks

- Taught students C++ and Data Structures one-on-one
- Made specialized lesson plans to help students understand what was going on in class
- Assisted students in understanding concepts themselves without giving away the answers

Club Teacher
SUNY Westchester Community College

06/2021 - 06/2022   *Valhalla, NY*

Achievements/Tasks

- Taught students video game programming, Lua and Love2D framework to have club members make such games as Breakout and Flappy Bird
- Created lesson plans and live coded in front of the club
- Organized educational events such as hackathons and raspberry pi tutorials

ORGANIZATIONS

Lehman Google Developers Student Club (09/2023 - 06/2024)
Vice President

Lehman CS Club (06/2022 - 06/2024)
Member

WCC OMEGA Club (09/2021 - 06/2022)
Founder / President