

Tal Erez

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Education

Duke University

Master of Engineering — Artificial Intelligence | 4.0 GPA

April 2025

University of California, San Diego

Bachelor of Science — Applied Mathematics | 3.65 GPA

March 2020

Experience

Algorithmic Research Group, Durham, NC | *Contract Machine Learning Engineer*

November 2024 – April 2025

- Expanding the ARG main agent's coding capabilities for it to have a more robust approach to effectively execute on its machine learning research goals. Some of these new capabilities include the ability to create deep learning models, hyperparameter tuning and the ability to implement regularization and optimization techniques.
- Migrated the main agent's architecture to a state machine setup in order to create a more fault-tolerant system which can retry execution failures and evaluate model performance during execution.
- Connected the main agent to the research agent to provide the main agent with a detailed plan of execution based on a literature review and to the judge agent to provide a thorough evaluation of model performance at the end of execution.

Amazon, Remote | *Contract Software Development Engineer*

July 2022 – January 2023

- Migrated databases for the Related Accounts Presentation Service (RAPS), the service used to connect one merchant account to another across regions worldwide, preventing loss of data before deprecation of the previous storage service.
- Created alarms in AWS to monitor errors, fatal logs and CPU utilization thresholds for the RAPS service. This resulted in faster response times to service failures.
- Built a filtering method in Ruby to retrieve a merchant's compliance status within a designated timeframe for the internal website used to conduct seller investigations. This new approach eliminated the need to parse through a seller's full history and reduced investigation times.

Shiver Entertainment Inc., Miami, FL | *Software Engineer*

July 2021 – July 2022

- Contributed to the development of Hogwarts Legacy in collaboration with Warner Bros. and Avalanche Studios for the PS4, XB1 and Nintendo Switch consoles using Unreal Engine. Selling over 24 million copies globally, Hogwarts Legacy became the #1 best-selling video game of 2023.
- Converted the codebase from Unicode to UTF-8, saving 250 MB of physical used memory as reported by automation tests.
- Altered the multi-thread framework of the game to efficiently pin threads to specific cores in order to reduce idle time on the Nintendo Switch platform. This improved the average frame rate by 10 ms per frame.
- Implemented an LOD system for game visual effects which reduced memory usage by an average of 100 MB and utilized Unreal Engine Python scripting to create an automated way of implementing the new system for all platforms.

Kallos Studios Inc., Carlsbad, CA | *Software Engineer*

October 2020 – July 2021

- Created a recycler view framework in C++ for the PC platform. Benchmarking a reduction in size to large cache files by up to 25% and increasing the average FPS for these files from 2 fps to 20 fps.
- Streamlined the creation of animations in-engine by constructing a forward kinematics algorithm that automates construction vehicle joint movements needed to grab objects, eliminating the need for manual joint manipulation.
- Converted the company's VR platform from utilizing its own separate user interface to leveraging the software's PC interface, enabling users to switch platforms seamlessly.

Research

Music-Mask AI: Conducting research in generating imperceptible audio perturbations that safeguard artists' work from copyright infringement and unauthorized data scraping, aiming to mitigate the risk of AI mimicry.

Multiple Sclerosis Classification: Designing an early-onset predictive model for multiple sclerosis using data from functional electrical stimulation braces. Data is collected from IMUs for gait event detection and spatial orientation reconstruction, and EMGs.