RYAN ETHAN FRIBERG

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EDUCATION

Columbia University – Fu Foundation School of Engineering and Applied Sciences — New York, NY
Master of Science in Computer Science – _Track: Computer Vision, Graphics, and Robotics_ — December 2023
GPA: 3.95

The University of Chicago — Chicago, IL
Bachelor of Science in Computer Science – _Specialization: Machine Learning_ — March 2022
Bachelor of Arts in Astrophysics
Summa Cum Laude

Notable Courses: Applied Computer Vision, AR/VR, Artificial Intelligence, Computational Aspects of Robotics, Computer Graphics, High Performance Machine Learning, Mathematical Foundations of Machine Learning, and Natural Language Processing

TECHNICAL SKILLS

· **Programming Languages:** C/C++, GLSL, Python, Rust
· **Frameworks:** Arduino, Eigen, HuggingFace, Matplotlib, OpenGL, Numpy, Pandas, Pytorch/Lightning SciPy, Sk-Learn, TF/Keras
· **Software & Tools:** Atom, Docker, Excel, GitHub, Kubernetes, LaTeX, SVN, Unix Shell, VS Code, Valgrind, Vim, VirtualBox

WORK EXPERIENCE

Odyssey Therapeutics • Boston, MA — May 2023 - Present
Machine Learning Research Intern
· Led a research endeavor to implement a diffusion-based machine learning pipeline for drug discovery
· Explored innovative approaches to include molecular structural information to the learning and generative processes

The University of Chicago • Department of Physics • Chicago, IL — Spring 2022
Learning Assistant – PSMS 31400: Creative Machines and Innovative Instrumentation
· Facilitated instruction on topics including computer aided design, 3D printing, circuit design and construction, and microcontrollers
· Mentored students with course material, troubleshooted students' projects, advised students' designs, and hosted office/lab hours

The University of Chicago • Department of Computer Science • Chicago, IL — Fall 2022
Research Assistant
· Assisted with the study of the application of machine learning for nuclear magnetic resonance spectroscopy system identification

IBM • Cloud and Cognitive Software Division • Remote Work — Summer 2021
Software Development Intern
· Migrated IBM's API Connect's testing and testing automation platforms from Python2 to Python3
· Developed a new OpenShift pipeline for API Connect's testing automation platform to improve deployment pipeline

Hong Kong University • Department of Astrophysics • Remote Work — Summer 2020
Jeff Metcalf Research Assistant
· Collected data from NuSTAR orbital observatory and used NASA HEASARC software to research soft gamma-ray pulsars

Icomera AB • Custom Development Division • Gothenburg, Sweden — Summer 2019
Software Engineering Intern
· Engineered an internal troubleshooting tool to continuously monitor and log hundreds of customer portals' statuses
· Employed Kubernetes and Docker to manage python code, queue, consumer, database and other microservices
· Implemented additional front-end web-app to display data and allow direct administrative manipulation of database

PROJECT EXPERIENCE

Image-to-Music Generative Model
· Designed and implemented a pipeline consisting of a vision transformer and stable diffusion to map images to music
· Inference involved obtaining the audio via generating spectrogram images corresponding to query image

Intelligent Robotic Manipulation System
· Constructed a suite of robotic systems that has functionality for handling both perception and motion planning
· Perception utilized U-Net based semantic segmentation; motion planning leveraged informed search over a 3D space

Contextualized Medication Event Extraction
· Created an end-to-end transformer-based system to extract medication and diagnosis language information from physician note text
· Achieved named entity recognition accuracy of over 99% and contextualized information extraction accuracy up to 90%

Resource-Restricted Deep Reinforcement Learning
· Built and trained a Deep-Q neural network to play various video games including Super Mario Bros. and Frogger
· Succeeded in having network measurably improve performance over time despite being limited in both memory and training time