Isamu Isozaki

Machine Learning/Robotics/Backend Engineer

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Location: Philadelphia, PA
LinkedIn, GitHub, Medium, Website

EDUCATION

DREXEL UNIVERSITY
GPA: 3.96
Philadelphia, PA
Honors in Bachelor of Computer Science and a Math Minor (Graduating Jun 2024)

Awards & Honors

- Maple's award
- Dean's List

Extracurricular Activities

- ML Reading Group Directed by Dr. Edward Kim

ADDITIONAL SKILLS

Programming: Python, Javascript, Matlab, Arduino, C#, Java, C++

Tools: Kubernetes, Matlab, Simulink, Simscape, Gitlab CI, Autodesk Inventor, VS Code, MongoDB, Docker, Maple, MySQL

Frameworks: Tensorflow, Keras, Pytorch, Numpy, Pandas, SQLAlchemy, React Js, Mongoose, Huggingface

COURSE WORK

CSI499 – With Professor Johnson, did an **Independent Study** where we implemented Advanced cryptography techniques, such as **Lattice Cryptography** and **Elliptic Cryptography** for decryption to not be possible without an **exponential time algorithm.**

CI103 – With a team, created a **multiplayer chess card game** in **Unity** and deployed it to a website with **React JS, firebase, and Node JS** with **sockets for a 20% faster request time.**

EXPERIENCE

MACHINE LEARNING ENGINEER

Glodon USA, Philadelphia, PA / Jan 2022 – Sep 2022

- Improved **inpainting model** to generate candidate road networks and building placement from **pix2pix GANs** to **Deepfillv2** and finally **state-of-the-art Diffusion Models** with **Transformers** from **Open AI's Glide Model** for a **3x reduction in l2 loss**.
- Implemented **a graph to room layout model** by **reading research papers** on the **House GAN** model and **modified** it so furniture is generated within the rooms for a **4x reduction in l1 loss** compared to **GANs.**

BACKEND/MACHINE LEARNING DEVELOPER

Moberg Analytics, Philadelphia, PA / Apr 2021 – Jan 2022

- Made Sparse Models for **Unsupervised Explainable AI** for Doctors to understand **how the AIs are doing predictions.**
- Set up data pipeline and IAM server using **Flask**, **Kubernetes**, and **MySQL** to distribute cleaned data in a fast and secure manner.
- Created models to detect medical emergencies at **90% accuracy** as well as a seizure detector with **87% accuracy**.

DATA SCIENTIST

Drexel University, Philadelphia, PA / Jul 2021 – Apr 2022

- **Cleaned and analyzed** covid testing data to **identify risk factors of covid** and constructed a model to predict covid at **80% accuracy**.

Backend/Machine Learning Developer

Kiara, Shibuya, Tokyo / Jul 2020 – Mar 2021

- Made spam text classifier at **97% accuracy** and deployed using **google cloud function** and **cloud run** as an API with **Flask**.
- Using **Gitlab CI**, **sped up the deployment** of the team by **75%.**

Projects

BIPEDAL ROBOT <GITHUB> <MEDIUM>

Apr 2022 - Present

- With a partner created a **12-dof bipedal walking robot** by using **Autodesk Inventor** to create and export the CAD to **MATLAB** to **simulate** the walking motion using the **inverse pendulum**.
- **Modified Inverse kinematics** algorithm so that a valid walking pattern emerges **80% faster.**
- **Optimized** code for Arduino by **casting data to 16 bits** and **utilizing periodic patterns in walking** for a **1/3 memory reduction**.

ROOM MATE'S DOG GENERATOR <GITHUB> <MEDIUM>

Jun 2022 - Present

- Independently generated photo-realistic roommate's dog pictures from **6 images** by improving from **Open AI's Glide model** to **few-shot textual inversion** for a **16% reduction in l2 loss.**
- Adapted **textual inversion model** so that training is possible with **30% of GPU RAM** using **gradient checkpointing and mixed precision**.

TACTIC GAME <GITHUB> <MEDIUM>

Nov 2018 - Apr 2022

- Created a **competitive reinforcement learning environment** with Gunma University and trained agents with **Open AI baselines**
- Used **docker** and **MySQL** to create servers for continual learning to **speed up training by 93%**.