# Isamu Isozaki

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## EXPERIENCE

**Glodon USA** **Philadelphia, PA**
*Machine Learning Engineer* *01/2022-09/2022*

- Lead the development of an inpainting model to generate road networks and building placement from **pix2pix GANs** to state-of-the-art **Diffusion Models** with **Transformers** from Open AI's Glide Model for a 3x reduction in l2 loss.
- Proposed and 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.

**Drexel University** **Philadelphia, PA**
*Data Scientist* *07/2021-04/2022*

- Organized the analysis of covid testing data from **MySQL** to identify risk factors of covid and constructed a model to predict covid at 80% accuracy using **Feature Engineering** with **Decision Trees**.
- Spearheaded the development of a data cleaning and organization pipeline to speedup analysis setup by 10x.

**Moberg Analytics** **Philadelphia, PA**
*Backend/Machine Learning Developer* *04/2021-01/2022*

- Oversaw setting up a data pipeline and IAM server using **Flask**, **Celery**, **Kubernetes**, and **PostgresSQL** to distribute cleaned data fast and securely.
- Discovered unencrypted patient data and lead team to setup https on **Kubernetes Ingress** to protect patient privacy.
- Directed the team to use **Git Submodules** and **Docker Compose** to speed up onboarding by 75%.
- Created Random Forest model to detect emergencies at 90% accuracy as well as a seizure detector with 87% accuracy.

**Kiara** **Shibuya, TOKYO**
*Backend/Machine Learning Developer* *07/2020-03/2021*

- Created spam text classifier at 97% accuracy and deployed using **google cloud function** and **cloud run** as an **API** with **Flask** to setup a company pipeline for designing and deploying AI models.
- Using **Gitlab CI**, sped up the deployment of general AI APIs for the team by 75%.

## PUBLICATIONS

- Published "Towards Searching Efficient and Accurate Neural Network Architectures in Binary Classification Problems" on IEEE

## EDUCATION

**DREXEL UNIVERSITY** **Philadelphia, PA**
*Honors in Bachelor of Computer Science Computer Science and Math Minor Candidate (Graduation 06/2024)*

- **GPA:** 3.96
- **Extracurricular Activities:** ML Reading Group Directed by Dr. Edward Kim

## 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. Currently working on speeding up **Homomorphic encryption** for a DARPA Grant.

## ADDITIONAL SKILLS

- Programming: Python, Javascript, Matlab, Arduino, C#, Java, C++
- Tools: Kubernetes, Matlab, Simulink, Simscape, Autodesk Inventor, MongoDB, Docker, Maple, Redis, Celery
- Frameworks: Tensorflow, Keras, Pytorch, Numpy, Pandas, SQLAlchemy, React Js, Mongoose, Huggingface

## PROJECTS

**Bipedal Robot** *04/2022-Present*

- With a partner, planned and made 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**.
- In **Matlab**, modified Inverse kinematics algorithm so that a valid walking pattern emerges 80% faster.
- Optimized Simulink code for Arduino by casting data to 16 bits and utilizing periodic patterns in walking for a 1/3 memory reduction.

**Roommate's Dog Generator** *06/2022-Present*

- Independently generated photo-realistic roommate's dog pictures from 6 images by improving from Open AI's Glide model to **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** *11/2018-04/2022*

- Collaborated with Gunma University on a competitive **reinforcement learning** environment and trained agents with Open AI baselines.
- Used **Docker**, **MySQL**, **Celery**, with **Redis** to create servers for continual learning to speed up training by 93%.