

# Beomsu Kim

Los Angeles

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Instagram

Linkedin

## Skills

## Education

University of California San Diego

Sep.2019-Jun.2023

BS CSE: Computer Engineering

ROK National Forestry Cooperative Federation Scholarship

Dec.2022-Jun.2023

## Experience

### Junior Developer

• Spring • Java • SQL • MVC • JQuery • Deep Learning • PyTorch • Software Engineering

Fountain Valley

**Solomon America**

Feb.2024-Now

- Managing and developing solutions for Hyundai and Kia's product quality management system(PQMS) using JQuery, Oracle SQL, and Spring MVC structure on Tomcat
- Collaborating with the senior member to reconstruct a webapp version of the solution
- Preparing to participate in a machine learning project with Hyundai Glovis

### Software Engineer

• HTML • ComputerVision • Machine Learning • Deep Learning • GANs • PyTorch

• Software Engineering

Los Angeles

**Mitaa**

Sep.2023-Feb.2024

- Built a [website](#) for memory clinic
- Managed patient dataset to use SSD to analyze medical images to catch Alzheimer's disease
- Built an appointment management system with **Google Firebase**

### Machine Learning Engineer Intern

• Deep Learning • Machine Learning • TensorFlow • PyTorch • Computer Vision

• Image Augmentation • YOLO

Busan, South Korea

**AT Solution**

Apr.2022-Jan.2023

- **TensorFlowed** for data engineering at a commercial industry field using **YOLO**
- Generated a model to detect a pattern recognition in an image dataset
- Served as an exhibitor for the company's booth at CES 2023 in Las Vegas and Collaborate with the team members to convince the potential customer of the products

### Computer Emergency Response Team

• Powershell • SQL • Computer Security

Incheon, South Korea

**ROK Marine Corps**

Oct.2020-Apr.2022

- Managed military vaccine servers for security updates using linux
- Drilled for a possible security breach situation including hacking mail, ransomware training
- **Powershelled** routine or repetitive works for efficiency using **REST APIs**
- Allocated IPs and controlled access to the networks for security

## Projects

## vktutorial beta version

- Vulkan • Computer Graphics
- Dynamic Rendering for code simplicity and Interactive camera
- RenderDoc for Debugging
- Abstraction based on <https://vkguide.dev>

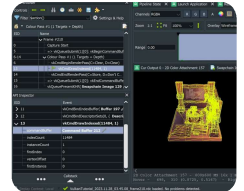
Jan.2024-Feb.2024



## Tonemap Vulkan

- Vulkan • RenderDoc • Lua • Dear ImGui
- **Tonemapping** integrated with **Vulkan API** to
- Integrating **Dear ImGui**, and **Lua** to debug and test
- Planning to **RenderDoc** for shader debugging

Nov.2023-IP



## Dive into Deep Learning

- Machine Learning • Python • PyTorch • TensorFlow • MxNet • d2l
- Implemented the concept of machine learning following the guide in *Dive into Machine Learning*
- **Recommender System, GANs, Transformer, Deep FM**
- Colabed for producing immediate output and feed back

Jul.2023-Oct.2023

## Particle System with subdivision

- Computer Graphics • C/C++ • Multithread • The Forge • Vulkan
- Advanced GPU rendering based on **TF** engine(**AAA**) **Vulkan** and **DirectX** pipeline simulating particle collision responses
- Instanced, indirect, and indirect with compute **shader rendering options** to compare the performance between them
- **LOD** strategy used for performance acceleration

Aug.2023-Sep.2023



## Ray Tracing and Tone Mapping

- Computer Graphics • C/C++ • Multithread • Ildb
- Ray tracing renderer with **BVH** and multithread acceleration
- **Importance sampled** for area lights and used GoogleTest
- Several **Tone Mapping** strategies are used

Apr.2023-Jul.2023



## ETA Predictor

- Machine Learning • Python • Colab • Deep Learning • PyTorch
- Feature engineered based on traffic information of the traffic data set in **Kaggle**
- Used **d2l** library referencing the book Dive into Deep Learning to solve real world problems by analyzing the pattern
- Planning to leverage error function than sigmoid to be robust against outliers

Apr.2023-May.2023

## Sonette Predictor

- Machine Learning • Python • Colab • Deep Learning • LLM
- Given the data set of Shakespearean sonnets and the first 40 characters of hint, generated what will be following the seed

Apr.2023-May.2023

- Generated sequences using **attention** model to solve the natural language processing problem
- Used d2l module on **PyTorch**, following the Dive into Deep learning tutorial

## Denigma

- Firmware Engineer • System Verilog • Colab • Deep Learning Apr.2023-May.2023
- **Cipher RTL** design project that encrypts and decrypts with **LFSR**
- Constructed the functionality with a constraint of using only 9 bits for every machine instructions and limited LUTs
- Based on RISC pipelining and clocking to enable the performance escalation of register operations

## Note Taking Site

- Software Engineering • Nodejs Mar.2023-May.2023
- Note taking site of **CRUD** functionality using **HTML, CSS, and JavaScript** for a diary
- **CICD** pipelined workflow and Agile to cooperate with the team on the development of the app
- Team Project done in Software Engineering class to practice agile with slack to deploy a note taking site

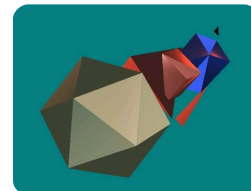
## Cloth Simulator

- Computer Graphics • C++ • Dear ImGui Jan.2023-Jul.2023
- **OpenGL** Physics based cloth simulation
- **Dear ImGui** for user interface to control air and other parameters
- Used **tasks** for devOps

## Catmull Clark Subdivision

- Computer Graphics • C++ • OpenGL
- **OpenGL** subdivision program using half-edge structure
- lldb to debug the mesh components
- Planning to compare with OpenSubdiv [Pixar 2012]

Jul.2022-Aug.2022



## Customizable Flash Cards App

- Software Engineering • Flutter • Android • iOS
- Memorizing materials supporting both the **android** and **iOS**
- Supported nightshift and color pickers
- Easy to use just have to import an excel file in a right format
- **TTS** support to reduce burdens of eyes staring at a screen and for accesibility

Sep.2021-Dec.2021

## SHA256

- Firmware Engineer • System Verilog • Colab • Deep Learning
- **RTL design** of SHA256 to generate SHA 256 outputs
- Built FPGA system to produce a desired output
- Used waveform feature to debug testbenches to verify the performance

Apr.2020-May.2020

## LCD Drivers

- Firmware Engineer • System Verilog • Colab • Deep Learning
- Printed letters on the display of an LCD driver using **ARM** assembly language
- Leveraged given mnemonics to interact with the embedded driver
- Used waveforms feature to debug testbenches and verify the performance

Jan.2019-Feb.2019