JAE HONG LEE

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EDUCATION

Boston University, Boston, MA Expected May 2025
B.A., Computer Science / Minor in Visual Arts 3.86 GPA | Dean's List (x4)
Computing and Technical Honor Society / Upsilon Pi Epsilon (UPE)

Korea University, Seoul, Korea Visiting Program
Department of Computer Science and Engineering

TECHNICAL SKILLS

Programming: C, Python, Julia, R, Java, MATLAB, Kotlin, Verilog, MySQL, HTML, CSS, JavaScript, Shell
Frameworks and Libraries: React.js, TensorNetwork, Hugging Face, Tensorflow, Pytorch, Sklearn, OpenCV, Docker, Flask/Django
Developer and Design Tools: CUDA, AWS, Linux, Azure, Figma, Sketch, Zeplin, Adobe Tool, Latex, Microsoft Office
Concepts: Software Engineering, Artificial Intelligence, Quantum Computing, Machine Learning, Neural Networks, Computer Vision, Computer Network, Distributed System, Database, Human Computer Interaction, Algorithms, Data Structure, Graphic Design

PROFESSIONAL EXPERIENCE

Quantum Computing Research Intern *Jun 2024 – Aug 2024*
Korea Electronics Technology Institute Seungnam, Korea

- Contributed to research optimizing memory efficiency for quantum simulations by storing only measured qubits up to 45 qubits, and developed a quantum circuit simulator using Google's Tensor Network, qiskit, and statevector to perform Grover's algorithm.
- Acquired comprehensive knowledge in quantum computing through foundational studies and delivered two internal seminars on key concepts such as qubits, superposition, Bell's theorem, the EPR paradox, and quantum computing simulations.

Computer Vision Research Intern *Jun 2022 – Aug 2022*
Korea Electronics Technology Institute Seungnam, Korea

- Applied Google's Vision Transformer (ViT) for advanced breed classification in cats and dogs kaggle dataset, incorporating patch based Transformer and Multi-head Attention mechanisms, achieving a classification accuracy of over 95% on benchmark datasets.
- Re-engineered the ViT model using TensorFlow, developing an API and integrating it with a open CV camera module for real-time capture applications, enabling accurate breed classification for real-life pets, improving both speed and precision.

Software Engineer Intern *Jul 2020 – Nov 2020*
Xenix Studio Seoul, Korea

- Integrated Blockchain technology into an on-site restaurant payment application using smart contracts, ensuring only verified diners could enhance the authenticity of in-service scores, while deepening my expertise in cryptocurrency and decentralization.
- Developed a responsive web application for Gandago, enabling them to enhance their online presence and engage customers across multiple devices, using Figma, React.js, HTML, CSS, and Bootstrap.

RESEARCH PROJECTS

Text-to-Panorama Generation Undergraduate Research *April 2024 - Present*
Research Assistant, Advisor: Aoming Liu Boston, MA

- Investigating a cube-based approach to refine text-to-360-degree panorama generation by combining spot diffusion techniques with latent space noise projection, with the goal of creating depth and improving visual continuity.
- Focused on achieving seamless transitions and realism in panorama generation by completing a 3D camera tutorial, covering areas of camera calibration, object localization, and geometric distortion correction to improve accuracy and depth perception.

AI-driven Hand Pose estimation Undergraduate Research *Sep 2023 - May 2024*
Research Assistant, Advisor: Eung-Joo Lee, JI Choi

- Implemented a custom-built haptic controller to generate natural hand postures, trained the XGBoost model with a collection of 3000-9000 training datasets, which improved handpose accuracy as dataset size increased.
- Designed a technique for generating hand poses and identified the need for time-series methods to reduce tremors in haptic control.

TECHNICAL PROJECTS

TO-DO Calendar *Jan 2024 – May, 2024*
React.js, Google Calender & Authentication API, Firebase, CSS, Figma Boston, MA

- Integrated task management with Google Calendar to sync tasks and deadlines, improving productivity by providing a overview.
- Automatic meeting additions have been implemented for Google Meet and Zoom to ensure users won't miss a meeting and to visually link tasks to their respective deadlines.

PUBLICATIONS

"Machine Learning-based Hand Pose Generation using a Haptic Controller," Eung-Joo Lee, Jongin Choi, Jae Hong Lee, Daniel Oh, May, 2024.