

KI-HOON LEE

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PROFESSIONAL SUMMARY

Mechanical engineer with end-to-end experience in electromechanical system design, prototyping, and thermal-structural analysis. Skilled in SolidWorks (3D & 2D GD&T), FEA, tolerance analysis, and manufacturing support for high-load and reliability-critical assemblies. Passionate about designing clean energy systems and working cross-functionally to bring sustainable products to market.

SKILLS

Engineering Software: SolidWorks, Autodesk (Inventor, AutoCAD, Nastran-In-CAD), ANSYS, LabVIEW, Onshape

Programming & Data: MATLAB, Python (TensorFlow, PyTorch, Pandas), Machine Learning, QGIS, Microsoft Azure

Hardware & Prototyping: 3D Printing (FDM, SLA), CNC Machining, ESP32, GD&T, DFM, DFA, DOE, FMECA

Languages: KOREAN: Mother Tongue | ENGLISH: Fluent | FRENCH: Upper Intermediate (DELFI B2) | CHINESE: Beginner

PROFESSIONAL EXPERIENCE

Mechanical Design Engineer (Capstone) | BLUE GOJI | Berkeley, CA

Sep 2024 – May 2025

- Designed and built a resistive omnidirectional treadmill for rehabilitation and VR applications.
- Engineered a hybrid braking system combining magnetic and friction brakes, reducing prototype costs by 50%.
- Designed and fabricated custom components using SolidWorks, 3D printers, and CNC tools reducing the BOM cost by 90%.
- Performed FEA to validate structural integrity; conducted static and dynamic load analysis to determine motor specs.

Prototype Engineer | TEAM BATH HEART | Bath, UK

Sep 2023 – Dec 2023

- Designed and prototyped mechanical components for a complete electromechanical cardiovascular assistive device.
- Created and iterated CAD models for custom housings; used basic CFD analysis to assess airflow and thermal behavior.
- Fabricated prototypes via 3D printing collaborating with biomedical and electrical engineering teams to ensure target alignment.

Infantry Squad Leader & Sergeant | REPUBLIC OF KOREA ARMY | Demilitarized Zone

Jan 2021 - Jun 2022

- Volunteered for elite front-line service at the Korean DMZ; completed 18 months under high-risk, high-discipline conditions.
- Led a 7-person infantry squad in 24/7 security patrols, surveillance operations, and rapid-response drills.

Reliability Engineering Intern | KIMM | Daejeon, Korea

Aug 2020 - Nov 2020

- Conducted lifetime and durability tests on robotic joints and mechatronic systems used in advanced industrial automation.
- Assisted in designing and executing test protocols to evaluate failure modes and fatigue behavior under cyclic loading.
- Analyzed failure data and proposed design improvements to enhance system reliability and longevity.

Materials Research Assistant | KOREA UNIVERSITY | Seoul, Korea

Jul 2019 - Sep 2019

- Supported research on transparent daytime radiative cooling for passive temperature reduction.
- Analyzed glass-coated Bragg reflector samples using SEM and laser microscopy to assess effectiveness of punctured designs.
- Contributed to material evaluation processes and compiled lab reports summarizing optical testing results.

PROJECT EXPERIENCE

GoalE: Interactive Ball Tracking System | Microprocessor-Based Systems Project

2025

- Built a real-time multitasking tabletop game using ESP32 and ultrasonic sensors for position tracking.
- Designed and programmed LabVIEW GUI to visualize ball trajectory and automate goalkeeper prediction for ball interceptions.

Neural Network for Player Market Value Prediction | Machine Learning Project

2024

- Built a neural network on PCA-reduced data (5,000+ soccer players), capturing 90% variance with ~14% prediction error.
- Boosted accuracy by 20% via feature selection (Random Forest), hyperparameter tuning, and L1/L2 regularization.

LALE SOLAR POWERED UAV OPTIMISATION with LIMOSAERO™ | Final Year Project

2024

- Simulated flight behavior of Limosaero's solar-powered UAV using real-time inputs to determine optimal flight paths.
- Assessed performance across varying weather conditions and tropical year cycles extending the UAV operational range by 20%.

EDUCATION

UNIVERSITY OF CALIFORNIA, Berkeley, (MEng) Master of Engineering

May 2025

GPA: 3.83/4.00 | Mechanical Engineering

CA, USA

Specialized in Energy Systems, Product Design | Relevant Courses: Energy Conversion, Data Science & ML, Nanotech, Microprocessor

UNIVERSITY OF BATH, (BEng) Bachelor of Engineering

May 2024

GPA: 3.80/4.00 | Mechanical Engineering

Bath, UK