David Ho

408-426-7845 | davidsw.ho02@gmail.com | linkedin.com/in/dswho2 | dswho2.github.io

RELEVANT SKILLS

Languages: Python, C++, Java, TypeScript, JavaScript, HTML/CSS, C#
Frameworks and Libraries: React, Flask, PyTorch, TensorFlow, Alembic, SQLAlchemy, Pandas, Pytest
Databases and Tools: MySQL, PostgreSQL, Redis, SQLite, Node.js, Git, Google Colab, Docker, LaTeX, AWS Cloud

PROJECTS

Sudoku Web Application
- Built a full-stack Sudoku web app with React, TypeScript, and Tailwind CSS for interactive and responsive gameplay.
- Implemented a Flask backend with PostgreSQL for user authentication and data persistence, deployed on Vercel.

Diabetic Retinopathy Severity Prediction
- Designed a machine learning pipeline using k-means clustering and pre-trained CNNs on 35,000+ images.
- Optimized deep learning models with TensorFlow and CuDNN for accelerated computations.

EXPERIENCE

Holor Technology, Inc.   **Jun 2024 - Present**
R&D Software Engineer   *Yokohama, Japan*
- Developed a Python-based testing framework for electromagnetic simulation software in C++ and Python, automating validation, ensuring 5% margin of error, and reducing benchmark time by 15%.
- Integrated command-line automation, used Pandas for log analysis, and Pytest for test case management.
- Designed a novel electromagnetic simulation method with the velocity gauge, improving accuracy and efficiency.
- First author of *Numerical Methods for Electromagnetic Simulation using Velocity Gauge*, submitted to the 62nd DAC.

Holor Technology, Inc.   **Jun – Aug 2023**
Application Engineer   *Yokohama, Japan*
- Created a user manual from scratch in LaTeX for a 3D parasitic extraction and simulation software, enhancing user understanding and operational efficiency.
- Developed and documented comprehensive procedures for ECO simulation and layout traceability, leading to a 10% improvement in design validation accuracy, while enhancing user efficiency by simplifying complex workflows.

Holor Technology, Inc.   **Jun – Aug 2022**
Software Engineer Intern   *Yokohama, Japan*
- Processed and cleaned a dataset of 8,000 entries using Pandas, preparing it for PCA implementation with scikit-learn to support dimensionality reduction.
- Conducted data analysis with Pandas, and created Matplotlib visualizations to analyze trends and uncover bugs and unintended results, supporting research on a novel numerical method and improving accuracy by 15%.

Google   **Sep – Dec 2021**
CS Research Mentorship Program Intern   *Remote*
- Designed and implemented machine learning models, including linear regression using PyTorch Autograd, to analyze and optimize real-world datasets, applying gradient-based optimization techniques.
- Conducted in-depth research on topics in Physics-Based Deep Learning, synthesizing key insights from papers and presenting findings to technical teams.

Stanford University Engineering Department   **Jun – Jul 2016**
Machine Learning Intern   *Palo Alto, CA*
- Implemented edge detection and CNN algorithms using Deeplearning4j for image recognition, improving accuracy and reducing processing time by 20%.
- Developed a fully-connected neural network in Java to classify handwritten digits from a dataset of 60,000 images, achieving an accuracy of 98%.
- Integrated Arduino Wi-Fi boards with the neural network for hardware connectivity, gaining hands-on experience in embedded systems and IoT.

EDUCATION

- **University of Illinois at Urbana-Champaign:** *Bachelor of Science: Engineering Physics, Minor: Computer Science*