

# David Ho

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## RELEVANT SKILLS

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**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

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### Sudoku Web Application with AI Hints

- Built a full-stack web app with React, TypeScript, and Tailwind CSS, with OpenAI GPT API integration for hints.
- 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

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### Holor Technology, Inc.

**Jun 2024 - Present**

*R&D Software Engineer*

*(Remote) 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.
- Collaborated with a team of three engineers in a fast-paced startup to design a novel electromagnetic simulation method using the velocity gauge, improving accuracy and efficiency.
- First author of *Numerical Methods for Electromagnetic Simulation using Velocity Gauge*, submitted to the 62<sup>nd</sup> DAC.

### Holor Technology, Inc.

**Jun – Aug 2023**

*Application Engineer*

*(Remote) 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*

*(Remote) 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 for hardware connectivity, gaining experience in embedded systems and IoT.

## EDUCATION

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