Paul Hoffmann

Curriculum Vitae - 15.11.2025

Education

2021–2024 **M.Sc. Computer Science (Specialization in Data Science and Engineering)**, *University of Colorado*, Boulder.
Graduate coursework in machine learning, data systems, and statistical modeling.

2017–2021 **B.S. Applied Physics with Electronics**, *California State University*, San Marcos.
Focus on applied physics, electronics, and computational methods.

Research Experience

2021–2023 **Natural Language Programming Research (Computer Science)**, *University of Colorado*, Boulder.
Dating Latin Text: Applied advanced deep learning methods to date ancient Latin texts, contributing to improved computational understanding of historical language patterns.
Get Literature: Developed a personalized literature recommendation system based on users' reading levels, enhancing user-specific content discovery.

2019–2021 **Undergraduate Project (Physics)**, *California State University*, San Marcos.
Characterizing Environmental Vibrations in Atomic Force Microscopy (AFM) with partners including Hologic and NASA.

2019–2021 **Undergraduate Research Assistant (Physics)**, *California State University*, San Marcos.
Employed AFM-IR microscopy to map the chemical and optical properties of 2D materials at nanometer resolution.

Summer, 2019 **Undergraduate Research Assistant (Physics)**, *University of California*, Davis.
Conducted experimental research using an automated tabletop setup emulating 2D granular materials to study avalanche dynamics, focusing on pile stability and grain configuration analysis.

Languages

English, German, *Native Speaker*.

Current Employment

Jan 2025 – Present **Adjunct Lecturer (Computer Science)**, *California State University*, San Marcos.
Designed and delivered course content focused on real-world applications of Computer Science. Integrated active learning and collaborative problem-solving to promote inclusive and engaging classroom experiences. Mentored students in both lab and academic contexts to foster critical thinking and technical growth.

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Previous Work Experience

May 2024 – August 2025 **Research Associate II (Microscopy Lab)**, *California State University*, San Marcos.
Managed operations of advanced microscopy labs (optical and electron). Conducted large-scale data acquisition with custom microcontroller systems for environmental monitoring. Created Grafana dashboards via SSH for real-time system visualization. Led the setup of AFM-IR instrumentation, SEM calibration, and UHV chamber construction for mass spectrometry experiments. Supervised and trained undergraduate researchers.

Aug 2023 – May 2024 **Capstone Intern**, *Yogh Group*, Boulder.
Led a team in building a fully automated algae growth system with sensor integration (oxygen, pH, temperature) and PID-controlled heating. Designed and developed a laser microscope and an optical spectrometer for algae classification via fluorescence and scattering, supporting future ML model development.

Teaching Merits

Courses **Computer Science I and II (C++)**
Data Science I, II, III
Assembly Language and Digital Circuits
Cloud Computing
Introduction to Mobile Programming
Web Programming
Critical Thinking with AI

Course Development **AI Task Force**.
Co-develop a new minor in Artificial Intelligence alongside the chair of Computer Science at CSUSM, Simon Fan, and Trevor Bonjour, professor at University of California, San Diego. This work involves building the new curriculum from scratch and designing its first course: Critical Thinking with AI.

Skills

Hardware Atomic Force Microscopy based- Infrared Spectroscopy (AFM-IR), Scanning Electron Microscope (SEM), micro-controllers, Proportional Integral Derivative (PID), and large-scale data acquisition

Programming Languages C++, Python, MatLab, Assembly, SQL