



Internship Position Description: Optical Metrology Data Science Intern

Company Overview

MONSTR Sense is a leader in next-generation optical equipment. We provide researchers and manufacturers with the tools to see the "unseen" using ultrafast laser technology. Our mission is to push the boundaries of semiconductor inspection to ensure the reliability of the next generation of microelectronics.

Role Summary

We are seeking a motivated **Data Science Intern** to join our R&D team. You will work at the interface of optical physics and machine learning, developing algorithms to automate the detection and classification of defects in semiconductor wafers.

Key Responsibilities

- **Algorithm Development:** Design and implement machine learning models (e.g., CNNs, anomaly detection) and work with linear algebra/classical signal processing to identify defects and inhomogeneities in optical datasets
- **Algorithm Optimization:** Optimize developed and existing algorithmic capabilities for computational efficiency
- **Data Pipeline Engineering:** Process raw ultrafast spectroscopic data, including noise reduction, feature extraction, and dimensionality reduction.
- **Validation:** Use statistical methods to validate model accuracy against "ground truth" microscopy benchmarks.
- **Documentation:** Present findings and contribute to internal technical white papers.
- **Physical Modeling:** Collaborate with our R&D team to integrate physical constraints into data models (Physics-Informed Machine Learning).

Qualifications

- **Academic Background:** Currently pursuing a B.S., M.S., or Ph.D. in Data Science, Computer Science, Physics, Applied Physics, or Electrical Engineering.
- **Programming:** Proficiency in **Python** is a must, specifically libraries like NumPy, SciPy, OpenCV, scikit-learn, scikit-image, pandas, and PyTorch or TensorFlow.
- **Analytical Mindset:** Strong understanding of statistics.
- **Communication:** Ability to explain complex data trends to team members with limited software & algorithm experience

Preferred (But Not Required) Skills

- Experience with **computer vision** or image processing.
- Familiarity with ultrafast spectroscopy/laser systems and solid-state physics/materials science.
- Knowledge of semiconductor manufacturing processes.

Why Intern with MONSTR Sense?

- **Cutting-Edge Tech:** Work with some of the most advanced optical systems in the industry.
- **Real Impact:** Your code will contribute directly to tools used by global semiconductor leaders.
- **Mentorship:** Work side-by-side with PhD physicists and veteran engineers in a collaborative startup environment.

Point of Contact: Dr. Eric Martin (President & Co-Founder): emartin@monstrsense.com