

STEFAN CLINE

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GitHub: https://github.com/StefanCline/Coding_Examples

EXPERIENCE:

- ASML Intern: Wafer Alignment Analysis
- Graduate Student: MS in Applied Mathematics (BS in Mathematics) (Calculus II Teaching Assistant)
- ASML Design Engineer: Photolithography - Upgrade Package Development, and Sequence Creation and Maintenance
- Captain, Military Police Corps: United States Army

Predictive Science Inc., Solar Physics Intern, San Diego, CA

Dec 2022 – Present

Learning Fortran and assisting the company with scripting. More roles TBD.

ASML, Wafer Alignment Intern, Wilton, CT

May 2022 – Aug 2022

Tasked with performing an investigation on a novel method for wafer alignment with the goal of determining this method's feasibility and reliability. Employed techniques of signal and image processing, data reduction, phase space transformations, and applied mathematics generally under a general physical optics-based framework/problem set. Additionally, planned and executed a data gathering test on a photolithography alignment test rig. Analyzed data to determine the viability of the novel method, and presented detailed technical findings to various stakeholders. Lastly, compiled my findings into a general information document so that my work could be expanded on further in the future. (Highest rated intern in the Wafer Alignment group.)

ASML, Design Engineer, San Diego, CA

Mar 2018-Mar 2020

Upgrade sequence engineer for EUV Photolithography systems. Delivered safe and executable sequences requiring high level technical comprehension of the EUV Source as a whole integrated system [High Powered 30kW+ Drive Laser, Beam Transport and Manipulation Chain, Vacuum Vessel, and Plasma Control] as well as specific individual modules.

- Key developer of the largest EUV Source baseline configuration sequence for two system types. Drove development, testing and implementation of the new modular sequence strategy, reducing sequence generation manpower by over 90%.
- Owned the upgrade sequencing, planning, and coordinating on a prototype system to allow higher powers (145W to 250W EUV output) from the Drive Laser. Managed planning changes on optical re/alignment, software upgrade issues, PEM calibrations, and optical alignment disruptions.
- Critical stakeholder in the integration process of new EUV system SW and HW packages from functional testing to customer release. This included direct influence on: focal length adjustment and optimization of plasma generation, diamond window thermal tolerance and safety calibrations, passive beam clearance SW, N₂ supply and exhaust to enclosed CO₂ beam transport, QS-AOM second pulse tuning to optimize plasma, and H₂ flow adjustment to prevent Sn damage to the main focusing mirror in the vacuum vessel.

Organization Law and Order Officer, Schofield Barracks, HI

May 2017-Feb 2018

Coordinated for an average of 35 soldiers and civilians to complete monthly training including: state and federal law, local/base standards, emergency response, case input, and lethal/non-lethal weapons employment in preparation to actively conduct law enforcement. Reviewed administrative equipment requirements for local SRT ("S.W.A.T.") team and regular patrolmen.

- Reduced potentially catastrophic shortfalls in administrative record-keeping; established a system that created and maintained roughly 650 backup files (a rotation of 1/3 of the force annually).
- Identified a critical equipment shortfall; contacted the requisite agencies to obtain over 4,000 TASER cartridges for training and certification. Allocated and forecasted annual current and future allotments providing users another less-than-lethal option.
- Synchronized with multiple departments to integrate cross functional assets. Updated and aligned outdated policies to ensure applicable compliance for planners and conductors of law enforcement missions.

Organization Senior Logistics Officer, Schofield Barracks, HI

Apr 2016-May 2017

Advised organization senior leadership and executed budget spending on: contracting, resourcing, global movement, maintenance, equipment modernization, and property accountability. Reviewed, analyzed and improved all logistics processes across the organization. Coached and mentored junior officers on army logistics by managing leadership and development classes.

- Completed \$350k+ in contracts enhancing law enforcement capabilities and global deployability, streamlining process to effectively provide 25+ new equipment capabilities; drastically improved requisition and overall efficiency.
- Implemented operational changes in requisition by ensuring all major transactions were reviewed by appropriate supervisory and managerial authorities – saving over \$475k+ in the 2017 Fiscal Year.
- Revised the organization's budget operations by placing emphasis on long term purchase planning; this foresight allowed an additional \$800k+ authorized to the organization at the end of the fiscal year.

- Outlined the current issues facing logistics teams and identified long term solutions through biweekly presentations to organization leadership. Detailed the importance of repairs and parts ordering, to the holistic requisition of million-dollar items.

Company Executive Officer, Schofield Barracks, HI

Mar 2015-Apr 2016

Managed all company-level logistics support: culinary, equipment maintenance, weapons room storage procedures, communications, supply and accountability, chemical/biological, and medical. Trained and advised for three platoon leaders, while reviewing all items and issues brought to the commander.

- Supervised seven section leaders, 47 support personnel and managed the accountability of \$27M worth of equipment. Ensured all sections provided timely and quality support to subordinate units during law enforcement and tactical missions.
- Analyzed critical issue of equipment shortfalls; identified and purchased \$180k+ worth of organizational equipment.
- Enforced the usage of communications security software while conducting tactical training, avoiding any FCC regulatory fines of up to \$250k, and spillage of classified information or operational procedures to adversaries.
- Reevaluated failing requisition support to three subordinate units [45 personnel each]. Ensured units clearly outlined shortcomings and worked with specialized logisticians to improve overall capabilities.

Platoon Leader (PL), United States Army Garrison - Casey, Republic of Korea

Feb 2014-Mar 2015

Worked hand in hand with a technically experienced counterpart to ensure training requirements, and law enforcement missions of 43 personnel were achieved above standard. Maintained a ready and fit force capable of deploying anywhere in Korea within two hours.

- Resourced and managed two, eight-week training cycles while maintaining accountability of \$7.5M worth of equipment. Directly in charge of four subordinates who utilized their 12 person teams to conduct operations.
- Managed troubleshooting, repair, and training for 163 personnel on 160 pieces of FM and satellite communications equipment. Fixed failed capabilities of the unit; provided 60 vehicles with functioning communications devices.
- Fixed monthly pay issues of 23 personnel totaling over \$11.5k per month by coordinating with outside finance experts.

EDUCATION

MS – Applied Mathematics, Dynamical Systems and Chaos | San Diego State University (GPA: 3.90)

Aug 2021 – May 2023

Fall 2021: Graduate ODEs, Mathematical Models, Discrete Dynamical Systems and Chaos

Spring 2022: Partial Differential Equations (PDEs), Computational PDEs, Continuous Dynamical Systems and Chaos

Fall 2022: Non-Linear Waves, Optics, Research

Spring 2023: Fourier Analysis, Thesis (Signal Processing Optimization w/ ML)

BS – Mathematics | Indiana University (GPA: 4.0)

Aug 2019 – Aug 2021

Completed (Other STEM Courses): Intro to FORTRAN, Physics I & II, Intro to AutoCAD, and Machine Shop Practices.

BA – German Studies | University of Nevada, Las Vegas | (GPA: 3.63)

Aug 2013 – May 2013

TRAINING AND CERTIFICATIONS:

Active Secret Clearance (Expired Jan 2022)

Highly Proficient in German

SKILLS (In order of proficiency)

MATLAB

Finite Element Methods (FEM) applied to standard problem sets as well as the NLS on a Torus

Multi-Layer Heat Diffusion PDE (FDS and Exact Numerical Solution)

Finite Difference Schemes (FDS) for PDEs [Hyperbolic, Elliptic, Parabolic]

Created High Resolution Mandelbrot Set Image utilizing Dynamical System ($z_{n+1} = z_n^2 + c, c, z \in \mathbb{C}$)

Solved ODEs: regular first order, delay, system

LATEX

Completed assignments, technical reviews, and projects utilizing Overleaf

VBA (Excel)

Experience Programming: Best Fit and Linear Regression, Lagrange Interpolating Polynomials, Linear/Cubic Splines, Integral Approximations (Trapezoid/Simpson/Richardson), Newton-Raphson, Monte-Carlo Simulation, Uncertainty/Error Bounds, MacLaurin Approximations, Basic Linear Algebra Operations, and ODEs (Runge-Kutta/Euler/Huen).

Python

Self-developed Rudimentary D-Field Generator for Linear ODEs

MAPLE

Used as complementary tool for solving complex first order linear differential equations and other problems