Colton Kawamura
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EDUCATION

Master of Science, Physics, Naval Postgraduate School, September 2020 GPA: 3.98

- Selected Coursework: Machine Learning for Signal Analytics, Search Theory, Quantum Mechanics, Linear Systems

Bachelor of Science, Applied Physics, U.S. Naval Academy, May 2012, GPA: 3.52

SKILLS

Programming Languages: Python (SciPy, NumPy, Pandas), MATLAB (Simulink), C++, Julia, R, LaTeX
Technologies: Linux, Bash, Parallel Computing, Git, GitHub, GitLab, SLURM, HPC, Gaussian, LAMMPS, GPAW

EXPERIENCE

Computational Physics | Naval Postgraduate School; Monterey, CA **May 2024 – Present**

Research Faculty, AD-3 (Remote)

- Engineered high-performance simulation frameworks in C++ (LAMMPS) for modeling fluid viscosity interactions in granular systems, optimizing energy transfer and dissipation analysis with custom molecular dynamics and post-processing pipelines.
- Designed scalable and modular software architectures, reducing computational runtime by orders of magnitude while maintaining accuracy and reliability in large-scale simulations with parallel programming.
- Created and implemented FFT-based spectral decomposition software to analyze trajectory signals, improving filtering accuracy, phase extraction, and noise reduction for real-time signal processing applications.
- Optimized high-performance computing (HPC) workflows using SLURM, enhancing computational efficiency for large-scale molecular dynamics, leading to the discovery of new fundamental physics models currently under publication.
- Developed over 20 interconnected software modules, streamlining complex particle interaction modeling and eliminating redundant processing through efficient data structures and algorithmic optimizations.
- Research on a Generative AI approach to High-Power Microwave (HPM) counter-swarming, optimizing algorithms and leveraging neural networks to improve predictive capabilities.

US Navy | US Africa Command; Stuttgart, Germany **September 2020 – March 2024**

Program Manager, Explosive Device and Unmanned Aerial System Defense

- Analyzed large unstructured data to extract trends and predict outcomes, informing strategic decisions. Conveyed complex relationships of variables into concise and actionable plain language. Developed and optimized unmanned autonomous aerial vehicle and explosive electronic countermeasures programs for multiple countries concurrently under Agile methodology.
- Led coordination for air flow, distribution, and obtaining host nation authorities to deploy counter unmanned aerial systems in combat environments. Personally briefed weekly status updates to Commander, US Africa Command.

Graduate Student | U.S. Naval Postgraduate School; Monterey, CA **September 2018 – September 2020**

Computational Physics

- Research in computational quantum thermochemistry. Thesis on thermodynamic properties of explosives by optimizing quantum systems, leveraged Density Functional Theory (DFT) for analysis with supercomputers.
- Completed an interdisciplinary Undersea Warfare curriculum that focused on operational employment of undersea warfare sensors and weapons using mathematics, physics, oceanography, electrical and mechanical engineering, and operations analysis.

US Navy | EOD Mobile Unit ONE & THREE, SEAL Team THREE **May 2012 – September 2018**

Explosive Ordnance Disposal Officer

- Led operational planning and integration of REMUS Unmanned Underwater Vehicles (UUVs), optimizing mission success through advanced software flow modeling.
- Maintained $7.7M in classified equipment over multiple countries. Coordinated movement through multiple countries maintaining low-visibility. In Iraq, provided daily updates on status of combat operations to superiors in United States.

AWARDS

- Academic: Chief of Naval Operations Undersea Warfare Award / Outstanding Thesis Award
- Military: Bronze Star Medal / Combat Action Ribbon / Joint Service Achievement Medal / and others.

PUBLICATIONS (3+)

- High-Energy Density Material with Magnetically Modulated Ignition, JASC (2024)