Andreas Kooi

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Education

California Polytechnic State University • San Luis Obispo, CA — September 2021 – June 2022
- Masters of Science in Business Analytics

University of California, Santa Cruz • Santa Cruz, CA — August 2018 – June 2021
- Bachelors of Science in Applied Physics
- Statistics minor
- GPA: 3.75/4.0

Cuesta Community College • San Luis Obispo, CA — August 2016 – June 2018
- GPA: 3.49/4.0

Experience

UCSC Applied Optics Group Undergraduate Member — Spring 2019 – Winter 2020
Santa Cruz, CA
- Data Manipulation: Used MATLAB to transform time-series data from nano-magnetic experiments to frequency-amplitude data in order to determine magnetic resonance properties.
- Preliminary Research: Investigated creating a magneto-elastic gas sensor with a high sensitivity. Proof of concept: Interdigitated transducers are used to create surface acoustic waves (SAWs) on a Poly Isobutylene film. Absorbed Dichloromethane gas on said film would shift SAW velocities and frequencies such that the magneto-elastic resonance properties of an attached nickel nano-magnet would shift and could thus be detected.
- Lab Assistance: Assisted graduate students with procedures and operation of a Time Resolved Magnetic Kerr Pump-Probe setup and a Scanning Electron Microscope.

Skills

- Programming: Python (Packages: matplotlib, pandas, numpy), STATA, R (Packages: tidyverse), Tableau, MATLAB (Packages: PDE Toolbox), Java.
- Computer Science: Object Oriented Programming, Recursive Programming, Abstract Data Types, Sorting Algorithms, Big O Complexity.
- Computational Methods: Numerical Integration (Trapezoidal method, Simpson's rule, Romberg Integration, Monte Carlo Integration), ODE Solutions (Euler method, Runge-Kutta).
- Statistics and Data Analysis: Error and Propagation Analysis, Standard Deviations and Variance, Chi Square Testing, Error Propagation, Confidence Intervals of Distributions, Linear Modeling.
- Mathematical Methods: Infinite Series, Power Series; Complex Analysis (Laurent Series, Integral evaluation with Residue method), Ordinary and Partial Differentiation, Vector Analysis, Fourier Series and Transformations, Calculus of Variations, Series Solutions of Differential Equations.
- Business Management: Porter Competitive Industry Analysis, Decision Analysis for Risk Management, Quality Function Development.
- Software: LaTeX, MS Suite(Word, Excel, Powerpoint), Adobe Programs (InDesign, Photoshop, Illustrator, Lightroom, Premiere).
- Electrical: Circuit design, analysis; Oscilloscopes, Network Analyzers.

Honors and Awards

Prose Publication – Red Wheelbarrow Anthology Issue 24 — August 2020
Santa Cruz, CA
- Short written piece "Fathered by a Rock" published in a student-run literary journal.

Dean's Honor – University of California, Santa Cruz — Fall 2019, Spring 2020
Santa Cruz, CA

AAHSFF Official Selection – All American High School Film Festival — July 2016
Harriman, NY
- Self-directed experimental film, *The Ditch*, accepted by AAHSFF and showcased at AMC Atlantic Times Square 14, New York.

References

Wei-Gang YANG, Postdoctoral Researcher at UC Santa Cruz — wygang27@ucsc.edu
Department of Electrical and Computer Engineering — 831.888.7458
Relation: UCSC Applied Optics Group

Joseph Schindler, Postdoctorate at UC Santa Cruz — jschind@ucsc.edu
Department of Physics
Relation: Advanced Physics Laboratory