Buzz A. Walter

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EXPERIENCE

Revo - Foods June 24 – present

Software Engineering Intern Vienna, Austria

- Implemented process monitoring machine vision model local web app based on transfer learning, ultimately reducing yield loss by an estimated 50%.
- Developed adaptive extrusion control system using a convolutional neural network and contour analysis algorithm in PyTorch and OpenCV, honing product quality
- Built both systems using Python-based computer vision and machine learning stacks on the Google Cloud Platform (GCP) and customized the models for deployment on facility-specific hardware.

Ardnt Group (*University of Vienna*) Sep 20, 2023 – May 01, 2023

Graduate Research Assistant Vienna, Austria

- Led development of camera based diagnostic tools, including beam profiling and in-situ vacuum camera setup, significantly enhancing desorption conditions and data quality.
- Led the design and construction of experimental setups for laser desorption and ionization utilizing CAD software and iterative testing to refine experimental conditions.
- Designed and developed an end-to-end processing harness using the emgfit package for Time-of-Flight (ToF) mass spectrometry data, significantly enhancing error analysis capabilities.

XUV Lasers Feb 06, 2023 – Aug 02, 2023

Research Intern Fort Collins, CO

- Developed a MIMO (Multiple Input, Multiple Output) active control auto-alignment system in MATLAB, incorporating advanced data stream dimensionality reduction for diagnostics and imporovment in stability.
- Engineered a camera based interlock system using the Qt framework, C++, and OpenCV, featuring a hotspot detection algorithm.
- Designed a high precision 1030nm spectrometer for the seed laser using CAD tools and developed its interface with the Qt framework.

SLAC National Accelorator Laboratory (*Stanford*) Aug 2, 2022 – Oct 21, 2022

AD Research Intern Menlo Park, CA

- Trained predictive neural network (NN) models to accurately map undulator parameters to beam output, showcasing advanced proficiency in machine learning techniques and their application to complex physical systems.
- Developed an evaluation pipeline that incorporated extensive pre-processing of large datasets while utilizing advanced literature, demonstrating strong data management and analysis skills.
- Collaborated within a diverse team of young scientists and engineers to address a challenging problem through original research.

EDUCATION

Colorado State University Aug 2018 – Jun 2022

B.S. in Physics & Mathematics (Minor in Machine Learning) – GPA: 3.4/4.0 Fort Collins, CO

- **Relevant Coursework**: Numerical Analysis I, Statistical Computing, Mathematical Statistics, Object Oriented Programming in Java, Introduction to Machine Learning, Machine Learning, Information & Coding Theory

University of Vienna (Partial Completion) Oct 2023 – present

M.S. in Physics Vienna, Austria

- **Relevant Coursework**: Experimental Quantum Optics & Quantum Information, Condensed Matter Physics, Advanced Computational Physics

SKILLS

Languages (Most Experience to Least) : Python, C++, Bash, JavaScript, Latex, Java, MATLAB, R

Tools/Frameworks/Libraries : Linux, FastAPI, React, Asana, GitHub, GitHub Copilot, Jupyter, VS Code, PyTorch, TensorFlow, SciPy stack, OpenCV