Axel Jacobsen

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EXPERIENCE

ENGINEERING INTERN | Wildlife Computers | May 2019 – Aug 2019

Wildlife Computers is the leading provider of advanced wildlife telemetry solutions

- Wrote C++ firmware to test PCBs that arrive from fabrication - autonomously confirms correct placement of components which allows for identification of faulty boards, improving production throughput
- Designed a digital isolator PCB to isolate the company's hardware from measurement devices, allowing for low-noise and accurate voltage measurements
- Wrote highly efficient post-processing software for a Joulescope (high precision DC energy analyzer) - calculates the Cumulative Distribution Function, Histogram, and "Max Window" of a set of data.

DATA SCIENCE CO-OP | Control Mobile | Jan 2018 – Apr 2018

Control Mobile aggregated and displayed transaction data for over 100 companies that used Stripe/Square/Paypal

- Wrote Python scripts to analyze and rank order over 300 individual SQL queries by their runtime to systematically optimize the SQL database; reduced the runtime to fetch and display customer data by 65%
- Worked with the agile backend team to fix existing bugs, write new code, and to refactor current code
- Fixed security issues that would leave the website vulnerable to SQL injection attacks

PROJECTS

DEEP REINFORCEMENT LEARNING | Denmark Technical University

- Writing a Deep Q-Network with PyTorch to play Atari's Pong
- Applying image analysis and parallel reinforcement learning to train the network quickly

SUCCOTASH | Basic Feed-Forward Neural Net

- Written in Python to learn the math behind Back Propagation
- Implemented to train quickly on a CPU by using Numpy vectorization

AUTONOMOUS ROBOT COMPETITION | Engineering Physics

- Deployed a real-time object detection algorithm on Raspberry Pi
- Created signal processing software to quickly and accurately detect certain IR signals
- Wrote C control software and created circuits to control the mechanical subsystems

EDUCATION

UNIVERSITY OF BRITISH COLUMBIA | Expected May 2021

B.ASc Engineering Physics, GPA 3.25
Coursework includes Object-Oriented Programming; Digital Systems and Microcomputers; Signals and Systems; Applied Quantum Mechanics; Linear Algebra; Honours Multivariable and Vector Calculus; Complex Analysis; Data Acquisition and Analysis; Analog Circuits; Mechanical Design

DENMARK TECHNICAL UNIVERSITY | Winter 2019

Exchange Semester
Coursework includes Operating Systems, Deep Learning, Robotics, Computationally Hard Problems

ABOUT ME

PROGRAMMING LANGUAGES
Python • C/C++ • Java
JavaScript • MATLAB

SUMMARY
I am an enthusiastic Engineering Physics Student at the University of British Columbia, with a passion for mathematics, physics, and robotics. I spend my free time working on my projects, climbing, running, biking, or skiing.