Austin T. Crain

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OBJECTIVE

Requesting an internship in software development and validation engineering which expands my knowledge and experience base, and prepares me for a future in Electrical and Computer Engineering

EDUCATION

- *BS Electrical and Computer Engineering* Penn State University ; Current Sophomore
  - Total Hours at end of Sophomore Class – 89 credits – 3.89/4.00 Schreyer's Honors Program
- Accepted into *Schreyer's Honor's Program*, Penn State's elite scholar program promoting:
  - Achieving academic excellence with integrity
  - Building a global perspective
  - Creating opportunities for leadership and civic engagement
  - To educate men and women who will have an important and ethical influence in the world, affecting academic, professional, civic, social, and business outcomes
  - To improve educational practice and to be recognized as a leading force in honors education nationwide
- *Scholarships*
  - Penn State Academic Grant
  - Pennsylvania State Grant
  - Penn State Lehigh Valley Scholarship
- Currently pursuing BS Electrical Engineering with intentions of MS Computer Science

JOB EXPERIENCE / ACHIEVEMENTS

Independent Research required for Schreyer's Honors Program

- Redesigned a remote control car to drive itself using an FPGA programmed in Verilog. Measured distances using ultrasonic sensors. Programmed FPGA using Verilog to analyze environment and drive the car.
  - Used oscilloscope to characterize sensor operation and debug circuit
  - Used debugging techniques for tracing circuit performance, validating each stage's successful operation, and optimizing system parameters
- Programmed a Sudoku solver in C++ that used linked lists to solve any size puzzle array
  - Initially provided brute force algorithm to understand process
  - Rewrote program to implement an optimized solution and benchmarked against other open source solutions. The final solution solved the most suggested arrays in times better than the available benchmarks
- Programmed a facial recognition program using MATLAB. Generated a library to do image searching using a recursive algorithm
  - Searched for adjacent pixels with high contrast to create clusters of potential eyes
  - Searched for clusters that were close and in-line with each other
- Used Python scripting language to program graphical user interfaces
  - Applied object oriented programming techniques

- Researched useful tools to allow my school teammates to collaborate on group projects more effectively. Presented results to university professors and peers for extending use to other students
    - Etherpad
        - Online collaborative document editor with history and chat
    - Anki
        - Electronic notecards
    - Evernote
        - Online scrapbook that can hold pictures, websites, notes, and documents
        - Able to do picture searches for text
- Coded a Turing Machine model using C++
    - Used a highly modular design to enable efficient debug

Penn State Tutor

- Formal tutor for Calculus, C++/Matlab Programming, Math, Physics, Introduction to Chemistry

The Lawn Guys 2007-2011

- Started an enterprise business to maintain lawns for clients in the general neighborhood.
- Prepared advertising brochures, and gathered accounts in a door to door sales effort
- Analyzed other service providers in the marketplace to determine what products to sell and how to make them competitively priced
- Learned the basics of customer interface and care. Instituted techniques to verify customers were satisfied with the service and received a fair perceived value
- Expanded customer base by instituting the "Backup Guy" program. This allowed customers to hire services for sporadic needs like vacations, special events etc. at fair prices. Most other commercial service providers only allowed annual contracts

REVELENT COURSEWORK

- C++ Programming skills and style (CMPSC 201)
- Intermediate C++ Programming - Object oriented programming covering special project programs including Data Structures, Classes, Doubly Linked Lists, Binary Trees, Recursion, built "Turing machine" to interpret basic assembly language, assembly language basics, wrote technical documentation explaining Turing machine program (CMPSC 122)
- Intro to Digital Design using Verilog to program FPGA devices (CMPEN 271)
- Discrete Mathematics focusing on graphs, trees, finite state machines, and formal language theory (CMPSC 360)

Enrolled for Spring2013 (2nd) Semester

- Mechanical Engineering Thermodynamics (ME 300)
- Web based programming using Java (CMPSC 221)
- Circuit Analysis for Analog Circuits (EE 210)

REFERENCES

Gidi Etzion, Manager of PCCG ME CAE (gidi.etzion@intel.com)

COLLEGE REFERENCES

Dr. Hal Scholz, Profesor of Physics and Engineering, Allentown Campus (hns12@psu.edu)
Dr. Carolina P. S. McCluskey, Assistant Professor of Computer Science (cpsm@psu.edu)
Dr. Todd M. Retzlaff, Associate Professor of Mathematics (tmr20@psu.edu)