Hanyu Xi

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TECHNICAL PROFICIENCIES

Software skills: C++, Python, Node.js, React.js, Linux, Version Control, OO Methodologies, MongoDB, Jenkins
Electrical and Controls Design: MATLAB, LabVIEW FPGA, Arduino, Raspberry Pi software development, Soldering and Components Assembly, Multithreaded Application
Mechanical Design and Prototyping: SOLIDWORKS, Eagle, 3D Printing, CNC Operation, Jig & Fixture Design

EDUCATION

Western University 09/2014-05/2019

B.E.Sc: Mechatronics Engineering

- Dean's Honour List (Achieving an above 80% average)
- GPA: 84 / 100

Pre-graduation PEO Record 05/2017-08/2018

- Intern Certificate

ENGINEERING EXPERIENCE

Data Engineering Intern 01/2018-09/2018

Trudell Medical International Company-New Product Development Department

- Developed and implemented a web application that helps doctors analyze patient's adherence to prescribed and rescue medication for asthma (Pandas/Flask Python, HTML/CSS, Wkhtmltopdf (auto-converting html to pdf))
- Designed and created multiple rendered graphs to help doctors visualize patient's adherence data information (D3.js, React.js)
- Setup and Configured MongoDB database to store patient's information
- Worked closely with stakeholders (respiratory physician) to determine the algorithm of calculating patient's persistence score and patient's technique score of using inhaler properly.
- Wrote unit test (unittest mock) python scripts to conduct the testing of web application algorithm and functions.
- Documented flowchart of Smart Inhaler algorithm and commented programming code
- Assisted in writing design note with a PEO and trained new Intern essential on programming skills for this project

Mechatronics Engineering Intern 05/2017-12/2017

Trudell Medical International Company-Technical Service Department

- Assisted in the design and manufacture of any test fixtures or jigs (Solidworks)
- Analysed test data to look for trends and prepare writer engineering reports for product testing
- Hands-on support services for 3D Printer build set-up and Post-processing
- Fixing and Maintaining three 3D Printers (MJM, SLA, SLA desktop)
- Designed a market display system for European Respiratory Society Conference (Raspberry PI)
- Acquired and analyzed competitor's OPEP products' sound waveforms (LabVIEW)

ENGINEERING PROJECTS

Robot Capable of Autonomous Navigation and Object Delivery

- Mechanical component (chassis and manipulators) design
- Extensive Arduino microcontroller programming (C++)
- Sensory system integration (light sensors, Ultrasonic Rangefinder, Hall-effect sensors)

Heatmap Calendar Data Visualization (Dash-Plotly, MIT licensed)

- Source Code and tutorial can be found: https://github.com/HanyuXi/Calendar_Heatmap_Dash_Plotly_Python
- Developed a Python script that allow python developer to program heatmap calendar
- Contributed to Dash Plotly (forum) to help other data visualization python developers who are not proficient in JavaScript. (https://community.plot.ly/t/auto-generated-heat-map-calendar/10524)

RESEARCH PROJECTS

Research Project: Study the Properties of Acoustic Metamaterials by LabVIEW

Western University Micro-Nano-Bio-System Laboratory 09/2018-In Progress

- Program LabVIEW FPGA modules to simulate and output required sound wave
- Acquired and Analyzed the sound waves from speaker to prove acoustic metamaterial can prevent the attenuation of sound waves
- Designed and 3D printed the experiment setup fixture (throat airway)
- Co-writing the paper of acoustic metamaterial study

Research Project: Cell Scaffold Fabrication by 3D Printing Techniques

Western University - Smart Material Laboratory 09/2016-12/2016

- Fabricating cell scaffold by using DAT material as filaments on Solidworks
- Studied the properties of Gelatin solution as support bath
- Simulating complex biological structure of cell scaffold