

‘Aaron’ Yuliang Deng

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SUMMARY

- 10+ years of multidisciplinary engineering background in mechanical and electrical products **R&D**
- 4+ years in Industrial Automation (PLC Programming, Networking and Software Programming)
- Implementing **Industry 4.0** for the past 4 years, by bringing cloud integration into several conventional equipment
- **AWS Certified Solution Architect Associate**, and **Cloud Practitioner**
- Agile/Scrum and traditional waterfall project management frameworks
- A team-player and eager to learn all the time
- **Python** (5 years), **C/C++** (3y), **Docker** (3y), **AWS** (3y), **Git** (3y), **JS/PHP/html** (8y), **OpenCV** (3y)
- Licensed Professional Engineer (**P.Eng**) with EGBC since 2013

EXPERIENCE

Keirton Inc (Twister Trimmer)

Surrey, BC, Canada www.keirton.com

2019-present, Chief Design Engineer - Cloud Computing and IoT

- Successfully developed a unified cloud platform that digitally integrates a range of machinery products. For over 3 years since initial deployment, it has been providing valuable insights of how the Twister-Trimmer products were operating. This project had made it possible to introduce a new rental option into the business model. The customer do not have to make a large financial commitment upfront to purchase the equipment, instead they could be only paying for the hours of usage every month. That helped TwisterTrimmer reach into a larger customer base, and bring in a new consistent revenue stream. A micro-service approach is used in the architecture and the main components include
 - An ETL Pipelines that collects data from a few different products in the field, and save into databases (MySQL and MongoDB). Different protocols are used (OPC-UA, REST/HTTP API, MQTT) for communication with different controller types (PLCs, Linux PC, and microcontrollers).
 - Big data analysis on the back end. (Python, Pandas)
 - A web portal to present aggregated data to customers as dashboards. (PHP, JavaScript)
 - APIs to dispatch updates of firmware and machine learning model (Python, Node.js)
- Developed a ‘3D scanner’ using machine vision (OpenCV) techniques. It measures the profile of plant material loaded on a conveyor belt, and a PLC controller will adjust the conveyor speed accordingly based on an algorithm. This device ensures a consistent feed from the conveyor and therefore improves processing quality. Also, the device brings more telemetry data into the dashboard for the customer.
- Assisted on developing a new product powered by Machine Learning / Image Segmentation.

2017-2019, Design Engineer - Automation

- Implemented an automation control into our latest and largest industrial machine (TwisterTrimmer T-Zero). A touchscreen HMI and a PLC controller system was built to orchestrate the operating of multiple VFD/motors, actuators and sensors. My responsibilities included mechanical design, electrical design, and PLC/HMI programming.
- Developed an electronic product with wireless cloud connectivity. My main contributions were circuit design and microcontroller firmware programming (C++)

Deere-Hitachi Specialty Products

Langley, BC, Canada

2014-2017, Design Engineer (Contract)

- Full lifecycle involvement in development for the new generation of Deere G-series forestry swing machines and Hitachi dash-six Foresters. Participated through the entire process: initial design, prototypes, to the final production and continuous improvement.

Knight Trailer Sales Inc

Langley, BC, Canada

2011-2014, Principle Engineer

- Development of heavy duty transportation vehicles and equipments. Work scope includes mechanical designing and drafting, BOM creating, and fabrication line support. About 60 products have been developed or revised during my service.
- Re-built the company website. Including a web-app to generate new VIN number in compliant format when registering new trailer vehicle. (JavaScript/HTML)

De Amertek Corporation

Oak Brook, IL, United States

2007-2010, R&D Project Engineer / Project Manager

- Actively involved in products development and testing, including electrical ballasts, sensors, actuators, electronic controllers, brushless motors and other electro-mechanical assemblies.
- Motor design: Developed a 3-phase brushless DC motor for automotive Electric Power-Assisted Steering (EPAS) application

EDUCATION

University of Maryland, College Park

2003-2007, PhD in Mechanical Engineering

Areas of research: Reliability of Electronic Products, Failure Analysis, and Electronics Packaging

Thesis: Carbon Fiber Electronic Interconnects

Binghamton University, State University of New York

2001-2003, Master of Science in Mechanical Engineering

Thesis: 2-D modeling and simulation of human knee in saggital plane

Tsinghua University

1997-2001, Bachelor of Science in Automotive Engineering

Thesis: The simulation and analysis of drive-train control strategies of hybrid electric vehicle

HOBBIES & INTERESTS

3D Design & 3D-Printing | Tinkering with microelectronics

(Thingiverse & GitHub profiles listed on linktr.ee/dylaron)

Guitar | Taekwondo | Stand-Up Paddle-boarding