‘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 architected, developed and deployed a cloud platform that enables data communication, diagnosis and firmware updates for a range of our machinery products, using a micro-service approach, primarily based on AWS infrastructure. This project had became a crucial part of the company’s digital transformation roadmap. It has provided both us and our customers plenty great insights of the operation with our products. Its 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’ to measure the profile of plant material loaded on a conveyor belt, and a control algorithm on the downstream PLC controller to react to the measurement. The purpose of such device is 1. to ensuring a constant volume flow rate from the conveyor regardless of loading consistency. 2. and to track the volume throughput for the customer on the cloud dashboard.
  Collaborating with industrial designers and contractor manufactures, we successfully delivered a solution that significantly improves the customer’s workflow and output quality.
- 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. Multiple VFD/motors, actuators and sensors are coordinated with a PLC with user input through a touchscreen HMI device.
- eveloped 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

- 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