Clayton Salinger Ketner

Mechanical Engineering & Software Development

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INTRODUCTION

Mechanical Engineer and software developer with strong practical experience, close attention to detail, and an interest in robotics, design, and fabrication. Highly organized, friendly, and eager to learn new technologies.

TIMELINE

June 2014 – Present

Counsyl – ***Automation Engineer****, Automation Service Engineer, Automation Specialist*

Designed new, and improved existing, automation hardware and software for robotic DNA processing lab

- Primary mechanical design engineer
  - Proven track record: no failures in any production run manufactured parts
  - Designed mechanical parts and assemblies in SolidWorks - DFM, DFA, part selection (COTS, OEM)
  - Performed requirements gathering, prototyping, and testing to validate and de-risk
  - Developed part and revision tracking and documentation system
  - Invented multiple novel designs (one patent application)
- PLC software development (Beckhoff PLCs in TwinCAT 3, including TwinSAFE) and HMI design
- Electrical box design and wiring for PLCs
- Front/back-end software development (Python and Django); platform/infrastructure (Puppet)
- Performed troubleshooting on hardware/electrical/software issues to identify root cause, provide fixes
- Utilized machine shop skills to create one-off fixtures and parts as needed

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2009 – 2014

Graduated from University of Southern California (USC) – *(extra year due to transfer)*

- **BS ME**: CAD (adv. modeling and FEA), adv. strength of materials, linear control systems, heat transfer
- **Minor CS**: Robotics algorithms, artificial intelligence

Summer 2013 (4 months)

San Bruno Pet Hospital – ***System Administrator***

- Independently maintained and installed hospital information management computer system and peripherals
- Communicated with employees and external tech support to report and resolve technical issues
- Received praise for improving the reliability of the hospital's hardware and software

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Summer 2012 (2 months)

Robotic Arm – *personal, for-fun project (click for writeup)*

- Stepper motor controlled 2-axis arm with my own inverse kinematics
- Designed, manufactured, wired, and programmed independently

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Summer 2011 (3 months)

OSIsoft – ***Virtual Campus Intern***

- Independently integrated OSIsoft's data collection software with an external analytics software
- Concluded findings in a White Paper posted to OSIsoft's vCampus website
- Received praise from an outside company (OPX Biotechnologies, Inc.) for the White Paper

SKILLS

My Favorite Tools

Mechanical – SolidWorks
Hardware Prototyping – my Makergear M2 3D printer, mill, lathe, etc.
Programming – VIM, tmux, Python, Django, git
I/O – Raspberry Pi, Arduino, Teensy

Mechanical Engineering

CAD – SolidWorks, Pro-E, Solid Edge, PDM, stress/strain and vibration FEA
Design – GD&T, design for assembly and manufacture (DFA, DFM)
Etc. – control systems, MATLAB & Simulink, LabVIEW, Mathematica, technical report writing

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Software Development

Languages – Python (+Django), bash/sh, C++, LaTeX, HTML
Etc. – git, Linux, TDD, PLC programming (Twincat 3, TwinSAFE), HMI design

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Hands-on

Etc. – mill, lathe, CNC, CAM, 3D printing, welding, soldering, wiring, cable management

AFFILIATIONS & AWARDS

Spring 2014 **USC Aerial Robotics Team** – *Mechanical team*
Fall 2013 **Dean's List** – *USC*
Spring 2010 **Dean's List** – *UMass*
March 2012 **Certified SolidWorks Associate** – *Score: 100%*