

CAREER SUMMARY, SKILL OVERVIEW, AND CONTACT INFORMATION REGARDING:

# PAUL D. SPOONER

**PROFESSIONAL MECHANICAL ENGINEER: CA #38358**

MRPAULSPOONER@GMAIL.COM

POST FALLS ID, NO RELOCATION

CELL: (805) 910-5814

PAUL.TRYOP.COM



I'M A CREATIVE ENGINEERING GENERALIST WITH A BROAD EXPERIENCE BACKGROUND AND A PE LICENSE. I'VE WORKED IN THE BIO-PHARMA, SEMICONDUCTOR, AEROSPACE, METAL FABRICATION, MEP, AND CUTTING EDGE R&D INDUSTRIES DOING A BIT OF EVERYTHING FROM SALES AND SPEC THROUGH DESIGN AND FABRICATION AND INTO INSTALL AND ON-SITE SUPPORT. MY DESIGNS HAVE INCLUDED 3D PRINTING, CIRCUIT BOARD DESIGN, LARGE WELDMENTS, AND LOTS OF ELEGANT 3D MODELING. I'VE ALSO DONE CONTROLS PROGRAMMING, TECHNICAL ART, WEB FRONT AND BACK END, TASK AUTOMATION, AND EVEN SOME GAME PROGRAMMING ON MINECRAFT! AVAILABLE FOR CONTRACT ONLY AT THIS TIME.

## FORMAL EDUCATION

**B.S., Engineering – Mechanical (Mathematics Minor)**

Graduated: May, 2006 **LeTourneau University**, Longview, TX

GPA: 3.62 / 4.00, Magna Cum Laude

LU curriculum requires 137 semester hours and is ABET accredited. Graduated in 4 years with 198 hours. Senior project; Lead a 5 member engineering team to win 2<sup>nd</sup> place at SAE Aero Design West 2006.

## SKILLS

### Computer:

C(++,#), Python, Java  
HTML, Pearl  
Solidworks  
MS Office  
AutoCAD  
Inventor  
Blender  
ANSYS  
CATIA  
Revit  
Creo  
NX

### Design for:

3D print, casting, PCB,

machining, welding, injection molding

### Hardware –

Aircraft Assembly

Automation, Molded fluid filtration

components, Electro-mechanical

Diebonders, Opto-electronics

### Software –

Dimensional and GD&T CAD, CNC laser, CNC router

3D Modeling and Animation (Conventional

and Procedural), Game programming

(Minecraft), Arduino

### System –

N-axis automation, Piping,

Duct, pneumatic, hydraulic, electronic

### Fabrication:

**Machine Tools –** lathe (wood and metal), mill, press, shear, mag-drill, saw (band, chop, table), grinder (angle and bench), buffing wheel

### Rapid Prototype (3D print) –

Sintered (plastic, metal), extruded filament, lost wax,

### Construction –

masonry, thin-wall ferro-cement, truss-frame,

tab-and-slot welded, excavation, wood frame

### Welding –

wire-feed (mig), stick, Tungsten torch gas shield arc (tig)

## PROFESSIONAL EXPERIENCE

**Senior Mechanical Engineer** May 2024 – Present

**Black Diamond Networks**, Undisclosed Client, Private Contract

Equipment Team for superconducting magnet manufacturing. Creating and supporting bespoke novel automation to unparalleled challenges.

- Line downtime reduced 70% in the first three months. Hero to the techs, co-workers, and managers.
- Many same-day 3D printed solutions and complex quick-turn low-cost sheet metal designs.
- Developing 5 patent applications resulting from bringing order out of chaos.

## 3D Specialist: Modeling, Animation, and Game Programming

October 1998 - Present

**Tryop LLC**, mostly remote over the internet, also mostly a hobby business.

Sales, marketing, web design, customer relations, technical art tool development, and production. It's a one-man operation; I do everything! Get professional results at hobby level pricing!

See my 3D Model Commission page <http://3D.TRYOP.COM>, and my code <https://github.com/dudecon/>

- Programmed a Python script for parametric tree generation in **Minecraft**, and was commissioned to implement it in Java. Client was very satisfied, and went on to sell the game for \$2.5 Billion: <http://MC.TRYOP.COM>
- Indie film "Project London". 3D Modeling (buildings, scenes, and vehicles), texturing, concept art, web-design, and animation: <http://peripheralarbor.com/ProjectLondon/>
- Designed and populated <https://www.wingsrising.org/> as well as my own websites.
- Handyman and construction: <https://handyman.tryop.com/>
- Since most of this is hobby level stuff, here's a bit more about me outside of work: <http://sub.tryop.com>

## **Engineering Coordinator** 100% Remote April 2022 – June 2023

**Micron Semiconductor**, Boise, ID, via **AMTS**, Tempe, AZ

Design management, automation programming, documentation and data entry in support for clean-room equipment installation and capital improvement projects. Includes 2D & 3D modeling in AutoCAD and Revit, programming in AHK and Python.

- Developed user-side software automation tools for data access, remote work, time logging, drawing setup, and project setup, resulting in ~30x reduction in automated task duration (minutes of error-prone concentration reduced to seconds of relaxation).

## **Lead Systems Engineer** July 2020 – February 2021 On Site, – Remote Contractor until December 2021

**& Design Engineer** May 2010 – March 2012

**Semiconductor Equipment Corp.**, Moorpark, CA

Design, programming, fabrication, troubleshooting, field service, and documentation for semiconductor manufacturing equipment. Includes 2D & 3D modeling, UI and embedded programming, wiring harness, and circuit board design in a lean manufacturing environment.

- Performed a 2 week install of clean-room equipment at the Albuquerque Intel Fab.
- Developed and demo'ed for customer 8W 532nm laser soldering for wafer tester repair.
- Designed, implemented, tested, and deployed UI and graphical updates, operational changes, and bug-fixes to arduino-based machine control system and touch-screen interface.

## **Project Manager / Sales Engineer** April 2019 – June 2020

**Titan Metal Fabricators**, Camarillo, CA

Sales and project manager for corrosion resistant process equipment. Gathered specifications, quoted, purchased, and supported pressure vessels and heat exchangers in Titanium, Tantalum, Zirconium, and other corrosion resistant alloys. Managed design, inspection, assembly, testing, shipping.

- Quoted, sold, and managed over five million dollars of projects.
- Managed several quick-turnaround custom fabrication orders, with 2 weeks from first call to shipment of ~\$40k of product each.
- Documented, organized, and systematized the HEX repair process, including successfully selling a 2+ year old orphaned order. Smooth handoff of the process to a new hire.

## **Mechanical Engineer** October 2016 – February 2019

**Gausman & Moore**, Santa Clarita, CA

HVAC and Plumbing design for both new and existing construction for submission to plan check. Some on-site surveys and customer contact. Extensive Revit work, along with some AutoCAD.

- Designed and/or revised all of the HVAC for the Delta-Shores mall in Sacramento California to meet state, city, and contractor requirements.
- On-site survey and full HVAC and plumbing design for both a kitchen remodel/expansion respecting existing finished spaces, and a pool-side bar with heated slab at the Four Seasons Hotel Westlake Village, California.
- Full HVAC design for the aesthetic-critical flagship T-Mobile store at 1 Stockton St, San Francisco, California.
- Programmed drawing setup automation tools resulting in ~30x reduction in setup time (minutes of error-prone work reduced to seconds of flawless software time).

**Mechanical Designer** October 2015 – October 2016

**& Contract Draftsman** January 2000 – December 2000

**Budlong and Associates**, Camarillo, CA

HVAC and Plumbing design for both new and existing construction for submission to plan check. Some on-site surveys. Extensive AutoCAD work, along with some Revit.

- Multiple Pleasant Valley School District site visits and HVAC refit designs.

**Engineer** March 2012 – October 2015

**Electroimpact**, Mukilteo, WA & Nagoya, Aichi, Japan

Cradle to grave engineer for aircraft automation. Gathered specifications, quoted, designed, purchased, inspected, assembled, tested, shipped, installed, and supported house-sized robots for Electroimpact customers (Boeing, Airbus, Embraer, Lockheed).

- Leader (3 members) for Flex Track storage and handling. Design, FEA analysis, purchase, fab, assembly, shipping, and install at the Boeing Charleston plant; 787 rear fuselage join lines 1, 2, 3 (forward compatible with line 4).
- Engineer on a team (20 members) that designed, fabricated, and delivered jigs for Embraer military transport assembly and drilling. Met exacting project documentation requirements and accelerated schedule.
- Support Engineer in Nagoya, Japan (solo assignment). Provided long-term on-site support for the E5000 Full Barrel Boeing 787 Fuselage Fastening Machine. Worked directly with both customer and business partners. Performed an “impossible” tombstone re-alignment, avoiding millions of dollars in downtime.
- Tool Engineer. Close clearance stress-critical offset rivet anvil design for multi-ton riveting machines for modernization of the Lockheed C-130 program.

**Data Entry & Programming** January 2010 – December 2011

**Soho Prospecting**, Camarillo, CA

Data entry and automated tool development. Extensive web collaboration for retailer maintenance and bug reporting.

- Populated a Joomla website with affiliate vendor information.
- Image manipulation for logo reduction and formatting.
- Task automation with AHK

**Engineer** May 2006 - October 2008

**Meissner Filtration Products Inc.**, Camarillo, CA

Project Management, design, fabrication, process documentation, and quality control of both automated and manual clean room machinery and tools in support of the cleanroom production line.

- Designer for In-house web handling machinery used to rinse, coat, and dry delicate filtration media. Shared responsibility with engineering lead. Aided in design, purchasing, fabrication, and installation.
- Designer in charge of a refit for prototype injection molding equipment for use in a clean room. Personally designed, fabricated, and tested a prototype mold cavity to solve heat exchange, part release, and smoke generation problems. The prototype passed all specification criteria, and the project was under budget.
- Solo project to develop hand-operated clean room tools for pleat pack handling and filter assembly. Three successive generations of prototypes were required to produce a solution. The new tools greatly reduced operator error and increased productivity.
- Project lead fitting a conveyor fed drying oven with automated loading and unloading robotics. Personally designed, fabricated, purchased components, assembled, and tested all major mechanical systems.

**Engineering Intern** May 2005 - August 2005

**Argon ST**, Camarillo, CA

Drafting and assembly for electronic and RF system mechanical parts and wiring diagrams.

- Finished a weeklong project in 10 minutes. Was offered a full-time permanent position on the spot. Declined because the pay wasn't good enough.

**Engineering Intern** May 2004 - August 2004

**Naval Facilities Engineering Service Center**, Port Hueneme, CA

Maintenance of robotic systems, data gathering, assembly, and drawing organization. Granted Secret security clearance.

- All project details classified.

**Drafter/Surveyor's Helper** May 2000 - August 2000

**Bennett Engineering**, Lakeport, CA

Drafting in AutoCAD and holding the pole for surveying. This was way back when surveying was done by hand-held lasers and retroreflector posts instead of photogrammetry and drones.

## REFERENCES

**Andy Wilkinson P.E.** Known since 1992

**Director of MEP Services** at Ayres Associates

**Former Supervisor** at Gausman & Moore and Budlong and Associates

**Childhood Friend**

[wilkinsona@ayresassociates.com](mailto:wilkinsona@ayresassociates.com)

661-291-4265

**Gloria Studley** Known since 2010

**Engineering Manager, Machine Design** at Semiconductor Equipment Corp.

[glorias@semicorp.com](mailto:glorias@semicorp.com)

(805) 529-2293 x32

**Ben Hempstead P.E.** Known since 2012

**Former Chief of Staff** at Electroimpact

[benjaminhempstead@gmail.com](mailto:benjaminhempstead@gmail.com)

206-250-4072

**Josh Donovan** Known since 2022

**Former BIM Lead** at Micron Semiconductor

[freewired@gmail.com](mailto:freewired@gmail.com)

971-235-3995

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<https://Paul.Tryop.com>

