Daniel C. Sparks

Expanded Technical Experience Portfolio

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Companion document to primary resume. Built to provide deeper technical context, project detail, and examples of real-world problem solving for employers, hiring managers, and technical reviewers.

Professional Identity

I am a hands-on technical operator, fabricator, and systems builder with experience across industrial maintenance, logistics, additive manufacturing, network infrastructure, automation, delivery operations, and business ownership. My strongest professional pattern is turning practical problems into working systems: physical parts, software tools, process improvements, production workflows, and technical workarounds that keep operations moving.

My approach is tool-agnostic and outcome-driven. I use whatever is appropriate for the problem: 3D printers, CAD, Blender, AI-assisted development, Codex, Replit, electrical tools, shop tools, networking hardware, documentation systems, spreadsheets, physical measurement, reverse engineering, direct customer discovery, and hands-on testing.

This portfolio expands the compressed details of my main resume and is intended for employers who want to understand the depth behind the bullet points.

Capability Snapshot

Industrial Systems	Maintenance support, machine controls, electrical assistance, conduit fabrication, LOTO awareness, schematic interpretation, and high-voltage exposure while shadowing senior electrical personnel.
Additive Manufacturing	FDM and resin printing, prototype development, custom parts, scan-assisted reverse engineering, printer diagnostics, tuning, calibration, and production workflow design.
Automation & AI	AI-assisted workflow systems for customer intake, order operations, production monitoring, project planning, and closed-network home automation concepts using Codex-built utilities.
Fabrication	Practical fabrication of real-world solutions using 3D printing, cutting, drilling, grinding, plasma cutting exposure, sheet metal processes, custom mounts, guards, adapters, and replacement components.
Logistics & Operations	Package delivery, route organization, warehouse flow, forklift/reach-truck operation, inventory handling, trailer movement, retail fulfillment, and high-volume material processing.
Technical Infrastructure	Server hardware, network infrastructure, mining farm operations, long cable runs, switch configuration, VPN concepts, NAS/cloud-style storage, diagnostics, and remote deployment.

Expanded Experience Detail

Founder & Owner - Quantum Forge 3D

Chehalis, WA • December 2022 - Present

- Founded and operate a custom additive manufacturing and rapid prototyping business serving consumer, commercial, automotive, and industrial needs.
- Built the finished Quantum Forge 3D business website as a public-facing service platform for presenting capabilities, collecting customer interest, building trust, and supporting quote/order workflows.
- Developed a practical customer workflow around quote intake, design discussion, material selection, production scheduling, quality control, fulfillment, and follow-up communication.
- Fabricate solutions for real-world problems by combining CAD, Blender, physical measuring, 3D scanning concepts, test fitting, print iteration, and direct customer feedback.
- Produce functional components such as brackets, mounts, covers, handles, tool accessories, appliance parts, automotive parts, storage/organization systems, and replacement hardware.
- Maintain and repair 3D printers in-house, including hotend replacement, gantry troubleshooting, calibration, firmware/printer behavior diagnosis, bed adhesion tuning, filament tuning, and print failure analysis.
- Use FDM and resin workflows where appropriate, selecting processes based on strength, surface finish, dimensional requirements, turnaround time, material behavior, and customer use case.
- Implement production methods designed around repeatability: batching, fixture use, consistent slicer profiles, printer-specific tuning, controlled material settings, and repeatable quality checks.
- Use AI-assisted systems to help with product planning, design review, workflow documentation, quote structuring, customer communication, business copy, and production monitoring concepts.
- Built the business as both a service operation and technical testbed for manufacturing systems, automation, marketing, client communication, and product development.

Delivery Associate - R2T2 Logistics

Washington State • November 2025 - Present

- Perform high-volume package delivery in residential and commercial environments requiring consistent time management, vehicle organization, safe driving, scanning accuracy, and customer service.
- Use practical organization methods to speed up package identification and retrieval inside the vehicle, reducing wasted time during route execution.
- Apply logistics experience to personal software concepts, including a delivery support app designed to identify packages by SID label, recipient name, address, and package image.
- Maintain composure under shifting route conditions, weather, customer access issues, package exceptions, and schedule pressure.

Maintenance Technician - Hardel Mutual Plywood Corp

Chehalis, WA • August 2025 - September 2025

- Originally hired as an Oiler and quickly moved into maintenance support due to demonstrated technical aptitude and hands-on repair capability.
- Supported a senior electrician on high-voltage industrial electrical work, gaining direct shadowing experience with facility power infrastructure and safe work practices.
- Assisted with power infrastructure work involving 400V-277V systems and 120V lighting/receptacle circuits in an industrial facility environment.
- Helped pull long runs of large-gauge 3-phase wire and ground wire using anchored pulling equipment and coordinated team communication.

- Used conduit tools including pipe threading and hydraulic bending equipment to support routed conduit installation.
- Troubleshot and repaired low-voltage machine control wiring, sensors, contactors, motors, and automation components under senior guidance.
- Interpreted electrical schematics, mechanical drawings, and P&ID-style; diagrams to understand equipment relationships and repair context.
- Worked around plywood production equipment such as spreaders, presses, saws, pneumatic/hydraulic systems, bearings, shafts, guards, and machine fixtures.
- Followed Lockout/Tagout procedures and safe-work expectations around high-voltage, high-pressure, and high-speed machinery.

Mining Technician & Infrastructure Specialist - Elite Mining Inc.

Chehalis, WA • July 2020 - May 2023

- Worked in a cross-functional role supporting large-scale cryptocurrency mining operations through electrical infrastructure, hardware diagnostics, networking, server management, fabrication, inventory, and logistics.
- Assisted with industrial electrical systems ranging from standard 120V circuits up to higher-voltage facility infrastructure, including breaker panels, receptacles, cable management, and load-aware troubleshooting.
- Performed large-volume diagnostics and repair on mining servers, control boards, hashboards, fans, power supplies, wiring, connectors, and related components.
- Used precision soldering, desoldering, and component-level rework techniques to extend hardware lifespan and reduce downtime.
- Built and maintained liquid immersion cooling infrastructure involving tanks, pumps, heat exchangers, fluid movement, thermal management, leak awareness, and maintenance planning.
- Planned and installed network infrastructure across large industrial spaces, including long cable runs, switches, repeaters, VPN concepts, NAS/cloud-style storage, and weather-aware outdoor connectivity.
- Fabricated physical solutions including rack accessories, cable trays, brackets, mounting hardware, sheet metal parts, and airflow improvements to support operational uptime.
- Managed inventory and documentation for large quantities of hardware, parts, tools, and repair components using spreadsheets and operational software.
- Traveled to remote sites and supported deployments across multiple locations, requiring independence, adaptability, and rapid understanding of unfamiliar infrastructure.

Forklift Operator / Material Handler - Michael’s Distribution Center

Chehalis, WA • September 2024 - November 2024

- Operated reach trucks, forklifts, and pallet handling equipment in a large distribution center environment with narrow aisles, high racking, and high-volume seasonal movement.
- Handled putaway, retrieval, loading/unloading, staging, restocking, pallet breakdown, conveyor preparation, and scanner-based warehouse activity.
- Designed and produced 3D-printed ergonomic mounts and replacement parts for warehouse equipment, turning observed workflow problems into practical fixes.
- Used warehouse experience to strengthen understanding of how custom fabrication can improve safety, efficiency, scanner access, tool storage, and equipment usability.

Digital Personal Shopper - Walmart

Washington State • January 2025 - June 2025

- Fulfilled online grocery and merchandise orders with emphasis on speed, accuracy, customer experience, and real-time problem solving.
- Memorized item locations and inventory behavior to improve pick efficiency and reduce order delays.
- Repaired and improvised fixes for handheld devices, carts, and fulfillment equipment where appropriate.
- Designed and 3D printed functional repair parts and workflow aids for damaged picking carts and store equipment, applying fabrication skills in a retail operations environment.
- Responded to a power outage by rapidly helping protect perishable inventory and reduce product loss.

Savage WA, A Transload Company - Warehouse Associate

Chehalis, WA • July 2025 - August 2025

- Supported high-volume lumber transload operations between manufacturing and retail distribution channels.
- Operated forklifts and Bobcats for material movement, staging, stacking, cleanup, and waste handling.
- Used pneumatic labeling systems for fast application of retail and inventory labels to lumber products.
- Maintained yard organization and material flow to reduce bottlenecks and keep outbound staging efficient.

Breda Logistics - Delivery Specialist

DuPont, WA • June 2024 - August 2024

- Delivered packages across high-stop-count routes, typically ranging from 80 to 134 stops per day with significant package volume.
- Used delivery scanning systems, customer-service judgment, route awareness, and vehicle organization to maintain accurate and efficient delivery operations.
- Built early delivery experience that later informed improved package organization and delivery-support app concepts.

STIHL USA - General Warehouse Associate

Chehalis, WA • August 2023 - December 2023

- Executed warehouse order picking with strong focus on speed, accuracy, and process optimization.
- Experimented with pick path improvements and scanner-based workflow shortcuts to increase daily productivity.
- Shared discovered process improvements with coworkers, improving team-level efficiency and demonstrating collaborative problem solving.

Technical Case Studies & Project Themes

1. Fabricating Solutions to Real-World Problems

I approach fabrication as a problem-solving system rather than just making objects. The process usually starts with observing a practical friction point: a tool that does not mount properly, a workflow that wastes time, a broken handle, a scanner that needs a better location, a part that no longer exists, or a customer who needs a custom-fit solution.

I then break the problem into constraints: load, heat, impact, wear, surface finish, tolerances, installation method, cost, print time, material behavior, and whether the part needs to be temporary, permanent, ergonomic, aesthetic, or purely functional.

I use available tools to close the gap: tape measures, calipers, reference photos, Blender, CAD-style modeling, slicer tuning, test prints, mechanical fasteners, adhesive methods, printer maintenance, and iterative redesign.

This method has been used for warehouse scanner mounts, printer repairs, custom production aids, appliance parts, organization systems, business card prototypes, automotive components, and industrial replacement parts.

2. AI-Assisted Order Flow and Production Operations

Quantum Forge 3D has been developed not only as a printing business, but as an operational system. I use AI-assisted planning and development tools to structure quote intake, customer communication, project tracking, order flow, production planning, and web copy.

I have worked on AI-supported systems intended to help translate customer requests into clearer production requirements, identify missing information, support pricing logic, and organize work from intake to finished print.

I also use AI systems for production monitoring concepts, operational documentation, workflow mapping, advertising scripts, website content, and technical planning. The goal is to reduce repetitive administrative work and keep more attention on design, manufacturing, quality control, and client communication.

This is not theoretical usage. AI tools are part of my practical workflow for turning business ideas into functioning systems, including website development, app concepts, documentation, pricing logic, and process design.

3. Codex, Closed-Network Automation, and Self-Hosted Systems

I use Codex and AI-assisted coding workflows as a force multiplier for building practical internal software tools. My interest is not limited to public websites; I am also focused on closed-network systems that run privately and securely inside a home or business environment.

Examples include planning systems for home automation, storage databases, delivery workflow tools, inventory organization, and NAS-connected resources that operate without exposing sensitive systems unnecessarily to the public internet.

I have explored using a home NAS, Tailscale-style private networking, secure SMB access, local dashboards, and internal apps that allow automation and search without compromising local files or devices.

This reflects a broader technical philosophy: build tools that solve a daily problem, keep private systems private, and use AI development environments to move from idea to usable prototype quickly.

4. Delivery Support App Concept

I have been developing the concept for a delivery-support Android app that does not integrate with FedEx or carrier infrastructure. Instead, it is designed as a private personal workflow tool for drivers.

The concept is to recognize key visual information from package labels, especially SID labels, recipient names, addresses, and package images, then allow the driver to search those fields to identify the physical package faster inside the vehicle.

A key feature is a daily reset function that wipes the operational state at the end of the delivery day, returning the app to a clean starting point for the next route.

This project combines logistics experience, real-world route pain points, OCR/image recognition concepts, local data handling, Android development planning, and privacy-conscious design.

5. Home Inventory and Storage Database

I have been designing a searchable home storage system that tracks locations, boxes, item quantities, and image thumbnails so physical belongings can be found quickly.

The system concept organizes storage by location and container, allowing each item to include quantity, associated images, and physical context. The goal is to reduce wasted time searching through bins or shelves by making physical storage searchable like a database.

This project demonstrates my interest in practical automation: use software and simple data structures to fix messy real-world problems in a household or small-business environment.

6. FPV Drone and Electronics Systems

I have built, repaired, configured, and flown FPV drones for years, including experience with soldering, component layout, flight controllers, ESCs, radio systems, analog and digital FPV video systems, and BetaFlight tuning.

This background strengthened my ability to diagnose small electronics, understand wiring, work with delicate components, and think in complete systems: power, signal, firmware, mechanical layout, RF behavior, vibration, and user control.

The same skill pattern applies to industrial repair, printer maintenance, network troubleshooting, and hardware modification.

Technical Domains

Industrial Electrical and Maintenance Exposure

- Experience supporting electrical infrastructure and industrial maintenance under senior supervision and in active production environments.
- Hands-on exposure to 120V systems, 277V/400V work environments, 3-phase wire pulling, conduit routing, equipment access, and machine-control troubleshooting.
- Practical familiarity with safe-work expectations around LOTO, moving machinery, elevated work, high-pressure systems, and high-energy equipment.
- Experience reading and learning from schematics, diagrams, machine documentation, and facility layouts.

Additive Manufacturing and Rapid Prototyping

- Operate 3D printing as a manufacturing workflow, not just a hobby process.
- Understand material selection, layer orientation, tolerances, bed adhesion, supports, surface quality, heat limitations, mechanical stress, and customer-use conditions.
- Build and maintain printers, diagnose failures, tune filament, modify slicer profiles, and design production systems around repeatability.
- Use printing to create real tools, replacement parts, customer products, prototypes, adapters, and organizational systems.

Network and Server Infrastructure

- Experience with large-scale mining infrastructure, network planning, cable routing, switches, repeaters, VPN concepts, NAS/cloud-style storage, monitoring, and remote deployment.
- Practical understanding of uptime, failure points, heat, power, connectivity, physical cable protection, labeling, and documentation.
- Interest in private self-hosted systems that maintain control over data and reduce unnecessary dependency on public cloud services.

Fabrication, Repair, and Shop Skills

- Use hand tools, power tools, measuring tools, printers, shop equipment, and improvised fixtures to solve physical problems.
- Experience includes cutting, grinding, drilling, fastening, printer-based fabrication, bracket design, mount design, cable management, equipment repair, and rapid field fixes.
- Comfortable learning unfamiliar tools and processes quickly when the job requires it.

Logistics, Warehouse, and Delivery Operations

- Experience across package delivery, route loading, warehouse picking, retail order fulfillment, reach truck operation, forklift operation, lumber transload, trailer loading, staging, inventory flow, and scanning systems.
- This operational background gives strong context for designing tools that actually help workers in motion rather than theoretical systems that ignore floor-level realities.

Representative Tools and Technologies

Design & Production: 3D printers, resin printing, FDM printing, slicers, Blender, CAD-style modeling, 3D scanning concepts, calipers, filament tuning, printer repair, print farm workflow concepts.

Industrial & Electrical: conduit tools, hydraulic conduit bender exposure, pipe threading, multimeters, lifts, forklifts, boom lifts, wire pulling systems, LOTO procedures, schematics, P&IDs;, 24V controls exposure, sensors, contactors, motors.

Software & Automation: Codex, Replit, AI-assisted development, website systems, workflow planning, closed-network automation concepts, NAS/Tailscale-style private networking, spreadsheets, Google Workspace, Microsoft Office.

Hardware & Infrastructure: server/mining hardware, switches, repeaters, VPN concepts, NAS/cloud storage concepts, long-run cabling, immersion cooling infrastructure, fans, power supplies, firmware management.

Creative & Communication: Photoshop, digital art, product photography concepts, ad scripts, brand messaging, business proposals, customer communication, technical documentation.

How I Solve Problems

1. Observe	Identify the real friction point: downtime, awkward movement, missing part, inefficient route, customer confusion, poor tool access, or repeated manual task.
2. Define	Break the problem into constraints: size, cost, strength, safety, time, environment, user behavior, material limits, electrical/mechanical risk, and repeatability.
3. Prototype	Use the fastest practical method: rough sketch, AI prompt, CAD/Blender model, test print, spreadsheet, local script, physical mockup, or temporary fixture.
4. Test	Check fit, durability, speed, usability, failure points, and whether the solution actually helps the person doing the work.
5. Iterate	Modify geometry, settings, material, workflow, user interface, mounting method, documentation, or process until it becomes reliable.
6. Systemize	Turn the solution into a repeatable workflow, saved profile, template, checklist, app flow, standard operating method, or production process.

Best-Fit Roles This Portfolio Supports

- Industrial Maintenance Technician / Maintenance Helper / Electrical Apprentice Support
- Manufacturing Technician / Additive Manufacturing Technician / Prototyping Technician
- Automation Support Technician / Technical Operations Associate
- Warehouse Systems Specialist / Logistics Operations Technician
- Field Service Technician / Hardware Repair Technician / Infrastructure Technician
- Engineering Support Technician / Fabrication Assistant / R&D; Support Technician
- Small Business Technical Operator / Production Coordinator

Personal Technical Advantage

The most valuable part of my background is not one single job title. It is the overlap: I understand warehouse work because I have done it, delivery work because I have done it, printer repair because I have done it, industrial maintenance because I have supported it, business operations because I run one, and software/automation because I actively build tools for my own workflows.

That combination lets me see problems from the floor, the customer, the technician, and the system designer at the same time. I am strongest in environments where practical problem solving matters, where systems need to be improved, and where someone is needed who can learn quickly, build quickly, and keep improving until the solution works.

Education & Credential Notes

GED - Gravity Learning Center
2020

License: Valid driver’s license

Safety/Operations Exposure: Forklift/reach truck operation, delivery vehicle operation, elevated work equipment exposure, Lockout/Tagout procedure awareness, industrial facility safety practices.