

Joseph D. Sharp

Phone: (678) 693-0788 | joseph@jdsharp.org



EDUCATION

IBM Professional Certification Program - Coursera RAG and Agentic AI Professional	2026 - Present
RCCC Advanced Technology Center Part and Mold Design for Injection Molding	August, 2025
University of North Carolina- Chapel Hill Bachelor of Science in Biomedical Engineering <i>Specializations in Regenerative Medicine and Medical Microdevices</i>	2020 - 2023
Cape Fear Community College Associate in Engineering and Associate in Science <i>Dean's List, Graduated with Honors, Member of Phi Theta Kappa</i>	2017 - 2020
Chattahoochee Technical College Mechanical Drafting Certificate	2011 - 2013

Awards

- UNC Biomedical Engineering Staff Teaching & Mentorship Achievement Award
- UNC Biomedical Engineering Student Citizenship and Service Award
- Niimbl Scholarship for students entering the biopharmaceutical field
- Student Academic Achievement Award for outstanding performance in Ethics

WORK EXPERIENCE

University of North Carolina, Chapel Hill Biomedical Engineering Design Lab – Lab Manager, Fabrication Education Specialist	2023 - Present
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- Provided critical subject matter expertise in manufacturing engineering to university laboratories. Developed a range of biomedical devices like orthopedics, wearables, biosensors, and microfluidic organ-on-chip applications.
 - Design for Manufacture (DFM) expertise given to UNC FastTraCS in prototyping, electronics, and mechanical engineering. Provided injection mold and material selection for regulated medical devices.
 - Managed \$3M R01 engineering project team through creation of electromechanical devices. Designed, engineered, and fabricated equipment for fatigue testing. Improved reliability, throughput, and UI/UX.
- Instructed 1,200 hours of classroom education to students on prototyping, product development, and Industry 4.0.
 - Included; CAD/CAM training, FDM and resin 3D Printers, CNC and manual machining, CNC work holding, injection molded part design, vacuum forming, laser cutting, soldering, PCB fabrication, and hand-tools.
 - Developed curricula and taught Fabrication skills to 16 sections of eight students per year in Junior Design. Focus on primary resources including ASME Y14.5, Lean Six Sigma, and ISO 9001 standards.
- Consult on industrial design, product development, manufacturability, verification and validation testing protocols. Develop proof-of-concept and MVP devices in accordance with ISO 13485, 21 CFR 820, and IEC 60601 standards.
- Supervise seven lab spaces and lab assistants. Maintains and repairs fabrication equipment and spaces. Maximizes safety for students using the equipment. Develop safety plans, SOPs, and quick-guides for all teaching laboratories.
- Deployed department-wide inventory and engineering control systems. Maintains inventory for teaching laboratories. Onboard and coordinate with stakeholders to implement new workflows relevant to classwork.
- Served on BME Design teaching team. Planned department retreats, networking events, and award committees.

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Other Duties include:

- Consult 20 Capstone Design teams per year through DFMA, materials, prototyping, and verification testing.
- Provide fabrication services for numerous early-stage prototypes for clinical trials and patent applications.
- Assist in DFMA and machine selection for spinoff companies, including Scyntek and Carolina-Instruments.

University of North Carolina - Chapel Hill

2021 - 2023

Biomedical Engineering Design Lab – Student Assistant

Designed and taught six-week PCB Fabrication Skills training module to undergraduate Biomedical Engineering students

- Installed Wegstr CNC- PCB mill. Utilized online resources to self-teaching strategies to learn to use the tool.
- Developed training guides and workflows to bring students from breadboarding to Electrical CAD environment.
- Taught through didactic lectures and flipped-format class structure. Provided one-on-one training as needed.
- Procured new equipment including microscope, CNC machine, waterjet, 3D-printers, and pick-and-place machine
- Created corrective and preventative actions (CAPA) maintenance plans in accordance with ISO 13485 and ISO 9001.
- Assisted undergraduate and graduate students with design, development, and fabrication of projects.
- Cleaned, maintained, and restocked supplies for three workshops and two classrooms, totaling over 2000 sq-ft.

University of North Carolina - Chapel Hill

2021 – 2022

BeAM Makerspace - Special Projects Coordinator

Provided design consulting, project management, and fabrication for major projects inside the makerspace.

- Renovated BeAM Custom Shop area. Integrated industrial embroidery machine, vinyl cutter, heat press and Cricut. Conducted market research, and developed criteria for redesign. Learned workflow of employees and patrons. Provided 3D concept art, fabricated loom organization system, and produced branding utilizing Adobe Illustrator.
- Produced a 7ft decorative awning from plywood and corrugated plastic using Shapr Origin CNC router. Developed design for mechanical components using Autodesk for FEA, parametric CAD with renderings, and CAM.
- Developed Makerspace Vending Machine. Created planograms and stocking strategies. Designed branding assets and infographics to aid patrons. Collaborated with Student stores and BeAM to develop payment and MRP system.
- Designed two interactive traveling displays for seven planetariums including Morehead. 3D concept, CAD/CAM and photorealistic rendering provided by utilizing Autodesk Fusion 360. In collaboration with Glenn Walters P.E.

Lead Tech Service LLC – Wilmington, North Carolina

2018 – 2020

Founder, Co-Owner

Provided microsoldering services and surface mount rework repairs to government, business, and end-users.

- Hired, trained, and managed four employees and 1099 subcontractors. Led projects, created budgets, managed accounts, purchased inventory and merchandise. Developed protocols employing Lean Six Sigma and ISO 9001
- Developed computer vision systems to detect thermal anomalies on circuit boards. Provided chain of custody documentation for DoD and NCDotJ repairs. Reverse engineered hardware to create schematics and board diagrams.
- Conducted A/B testing of new processes. Provided manufacturers with root-cause analysis, and FMEA.
- Employed just-in-time manufacturing strategies and inventory system for reordering and maintaining stock.

Other Duties included:

- Identified and evaluated niches in the consumer electronics repair industry. Provided training for external partners.
- Created website and webhosting strategy. Developed operational standards with SOPs and KPIs to evaluate strategy.
- Designed advertising materials including print and digital ads, website, logo, and YouTube videos

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The Computer Warriors Inc – Wilmington, North Carolina

2015 – 2017

Mobile Device Repair Consultant, Store Manager

IPC Surface Mount Rework, AppleCare Mac Technician Cert, AppleCare IOS Technician Cert

- Deployed repair tracking system to provide customers with invoices, technician notes, and test results.
- Provided purchasing and technical expertise in refurbishment procedures. Presented at CTIA Repair Conference.
- Managed seven full-time employees. Conducted payroll, 1-on-1s, and reviews. provided customer service and HR.
- Developed merchandising strategy; including KPIs, stake-holder surveys, and material requirement planning
- Diagnosed elevated problems, including on-site assessments and microsoldering repairs
- Created advertising strategies including in-store events and customer experiences.

Smart Touch Mobile LLC – Marietta, Georgia

2014 – 2015

Operations Manager, Chief Technical Officer

Created overnight repair option for phone repair kiosk in the Mall of Georgia. Increased revenue by \$250k.

- Managed employees in three-shift pattern to complete contract remanufacture for Apple and Samsung
- Conducted build-out for repair depot, including construction of retail store, workspace, and tooling purchases
- Deployed Salesforce (CRM) and inventory management system. Automated material requirements planning (MRP).
- Provided technical expertise on repair complications, root-cause analysis, and FMEA to manufacturers
- Developed jigs and fixtures, spaghetti diagrams and processes. Documentation such as quick-guides, SOPs, and KPIs.
- Obtained vendors and merchandised retail store. Developed advertising plan including events, and social media.

Archause 3D-Printing Startup – Alpharetta, Georgia

2012 – 2014

Chief Executive Officer, Chief Technical Officer

- Engineered new 3D printing technologies including large format printers, multi-material printers, and applications.
- Conducted Fundraising and found investors for Series-A capital. Hired executive officers and technicians.
- Created blueprints, and mechanically engineered printer parts. Created workholding and processes for machining.
- Machined parts from aluminum and steel using Bridgeport mill. Utilized 8020 extrusion to create motion systems.
- Discovered vendors, created BOMs, and ordered inventory. Conducted R&D, verification, and validation.
- Provided 3D printing services to architectural firms and bicycle shops, utilizing 3D scanning and photogrammetry

Mar-Maxx Inc – Johns-Creek, Georgia

2009 - 2014

Customer Experience Coordinator

- Provided internal and external customer service at metro-Atlanta TJ Maxx stores.
- Received trucks and merchandised shelves according to planograms provided by corporate office.
- Conducted calls between Southeast Region stores. Introduced new sales strategies and policies.
- Operated Cash office. Collected drops from cashier tills, and completed cash-office journaling.

Sharp Industrial Machine Shop – Canton, North Carolina

2001 – 2012

Machine Shop Intern

- Operated various saws, forklift, chainfall, sandblasting equipment, grinders, benders, and die-stamping machine.
- Assisted operators of Bridgeport mills and lathes for cutting steel, cast iron, bronze, brass, aluminum, and plastics.
- Utilized engineering blueprints to fabricate prototypes of industrial tooling from common materials.
- Gained working knowledge of hydraulic and pneumatic actuation in an industrial manufacturing setting.
- Developed working knowledge of tolerances, aluminum and steel grades, and hardening techniques.
- Learned skills including measurement, electronics, and welding using stick, MIG, TIG, and oxyacetylene.
- Shadowed management through accounting, ISO 9001 quality assurance, safety audits, and customer service.

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LEADERSHIP AND COMMUNITY INVOLVEMENT

- Make-A-Wish Foundation** – Dept of Biomedical Engineering, UNC Chapel Hill 2025
- Provided fabrication expertise to students participating in a BME Bootcamp for Make-A-Wish Kid, Jayden
 - Sourced materials and equipment to enable production of a prototype eye patch designed by students
 - Demonstrated AGILE process, including needs assessment, voice-of-customer, and minimum viable product
- Engineering Capstone Project** – Dept of Biomedical Engineering, UNC Chapel Hill 2020 - 2023
- Developed a novel actuator for endoscopic GI surgeries which aim to reduce post-surgical complications
 - Managed eight team members over three years. Developed a needs statement, and collaborated with Dr. Todd Baron and Dr. Lisa Gangarosa in the Advanced Endoscopy Fellowship at UNC Hospital Gastroenterology (GI) Dept.
 - Prototyped a working prototype using available methodologies. Designed verification and validation techniques.
 - Employed Greenlight Guru QMS to document verification and validation of product development process.
 - Developed product, manufacturing, testing, and labeling in accordance with ISO 13485, 21 CFR 8xx, and IEC 60601-1
- Founder and President of The Drone Club at Chapel Hill** - UNC Chapel Hill 2020 - 2023
- Built and raced first-person-view racing drones, that utilize RC technology and fly at speeds over 100mph.
 - Provided demonstrations of technology to researchers in the Carolina Drone Lab (CARDNL)
 - Offered building classes to UNC students, to show proper soldering techniques and drone components.
 - Filmed new mountain-bike trail at UNC Outdoor Education Center using a high-speed cinematic drone.
 - Tabled at several BeAM MakerFest events and recruited throughout campus with flyers and demonstrations.
- Soldering Class Instructor** – Carolina Adapts Toys for Children (CATCH). UNC Chapel Hill 2023
- Collaborated with club executive board to develop soldering training guidelines and teaching techniques.
 - Taught a two-part class to 40 students on correct soldering technique following IPC J-STD-001.
 - Helped to improve quality control procedures by developing a lasercut jig for holding parts while soldering.
- BMES Mentor** – Biomedical Engineering Society (BMES). UNC Chapel Hill 2022 - 2023
- Conducted resume reviews and guidance to three undergraduate Biomedical Engineering Students
 - Presented and served on panels at club sponsored events and spoke about my experience in industry.
 - Provided guidance to students on creating a web-presence by developing an engineering portfolio website
- Meet-Your-Neighbors** – Interprofessional Education and Practice. UNC Chapel Hill 2022
- This initiative encourages collaboration between Health-Care Professionals, Biomedical Engineers, and MBAs*
- Created flyers and posters for the event using Adobe Spark, canvased public spaces
 - Executed day of logistics, including registration, site setup, and evaluation.
- Drone Class Instructor**– Dept of Engineering, Cape Fear Community College 2020
- Developed and taught an afternoon bootcamp on state-of-the-art drone technology
 - Delivered a didactic lecture on drone dynamics followed by a hands-on demonstration
 - Assisted Department Chair in selecting and purchasing a fleet of drones to aid in teaching students
- 3D Animation Class Instructor** – The Computer Warriors, Wilmington, NC 2017
- Developed and taught a five-week course in animation using Adobe Animate for 2D and using Blender for 3D.
 - Created step-by-step instructions in PDF format that students could follow at home.
 - Produced workflows for five different animation styles, from a cartoon animation to a physics animation.

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TECHNICAL SKILLS

Hardware

- Production manufacturing specification and design
 - Progressive stamping design for sheet metal
 - Injection molding part and tool design
 - Six-sigma, LEAN, Scrum, Toyota production
- Quality control systems
 - Serialization, computer vision systems
 - Brinell hardness, Shore durometer testing
 - Surface profile, gauges, go/no-go
 - Tolerance stack-up, GD&T Y14.5
- 3D-printing technology
 - Fused Deposition Material (FDM)
 - Resin Based SLA and MSLA
 - Powder bed sintering SLS
- Powered and unpowered motion systems
 - Stepper motor driven systems
 - Inverse kinematics, linear motion systems
 - Servos, BLDC, DC Motors, gearing
 - Pneumatics and hydraulics
- Drawing and Painting
 - Graphic Design and illustration
 - layout and blueprinting
- Consumer Electronics
 - Battery selection, power draw, and ratings
 - Printed Circuit Board (PCB) design and fab
 - Reverse engineering circuit boards
 - BOM management and part selection
- Single Board Computers
 - Arduino and Raspberry Pi ecosystem
 - ARM based STM32 and ESP32
- Machining and Woodworking
 - CNC, work holding, jigs, and fixtures.
 - EDM, stamping and drilling operations
 - Etching, surfacing, and sandblasting
 - Tool and material selection, qualification
 - Bonding, riveting, brazing and welding

Software

- Customer (CRM), Quality (QMS), and Inventory (MRP) Management.
 - Salesforce, Greenlight, ProShop, Sortly
- Hard Surface Modeling
 - AutoCAD, Solidworks, Fusion 360
- Assembly and Animation
 - SolidWorks, OnShape, Inventor
- Soft Surface Modeling
 - Blender/Maya, and Mudbox
- Rigging, VFX, and Rendering
 - Blender with Cycles, Fusion 360
- Engineering Physics Simulation
 - OpenFoam CFD (Computational Flow)
 - Ansys for Fluid, Heat transfer, and FEA
- PCB Design (E-CAD)
 - Eagle, Altium, Fusion 360
 - KiCAD, Adobe Illustrator
 - NI MultiSIM spice analysis
- Graphic Design
 - Photoshop, Illustrator, Inkscape
 - Adobe Spark, Canva, Figma
- Development Environments
 - Visual Studio Code with Platform.IO
 - ArduinoIDE, STM CubeIDE
 - LabView, MatLAB, Simulink
- Training and tuning ML, LLM, Agentic, and Gen-AI
 - LMstudio, ComfyUI, Ollama, OpenClaw
 - PyTorch, TensorFlow, Kohya

Programming Languages

C , C++ , Python, HTML, XML, LUA

REFERENCES

Glyn Byrd: (919) 995-4250
Co-owner, Lead Tech Services LLC

Bob Dennis: (919) 730-0221
Co-Founder, Entegriion and Cortical Metrics

Kenny Langley: kenny@beam.unc.edu
Director, UNC-Chapel Hill BeAM Makerspaces

Bill Polacheck: polacheck@unc.edu
Professor, Fluidics and Bio-inspired Design