

HOWARD MACK

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Mechanical Designer

Please see WORK SAMPLES and RESUME at www.tech3d.com/portfolio... I'm a Mechanical Designer "extraordinaire"... Which simply means I really ENJOY mechanical design... Past projects have involved Complex Geometry, Weldments, Sheet Metal, Machine Design, Structural Design, Plastics Design, Fab Dwgs, Assembly Dwgs, BOMs, Data Management, Production Release Tools, Prototyping, Manufacturing and Shop Liaison, Assembly, and Trouble Shooting...

SOFTWARE SKILLS

AUTODESK INVENTOR

- Frame Generator / Weldments
- Sheet Metal
- Surfacing / Plastics
- Parts / Assembly / Documentation

SOLIDWORKS [Certifications]

- CSWPA C-TNS8ULYT3X
- CSWPA-WD C-RWDXERY8DP
- CSWPA-SM C-UVNWX5JKFZ
- CSWPA-SU C-QWXPVZS78Z
- CSWPA-DT C-5QDK8SWVKN

AUTODESK VAULT

SOFTWARE IMPLEMENTATION and CUSTOMIZATION

DISCIPLINES

- Metal Fabrication
- Weldments
- Sheet Metal
- Surfacing
- Plastics
- Fabrication Drawings
- Assembly Drawings
- Bills of Materials
- Engineering Change Orders
- Document Release Cycles

SOFTWARE / HARDWARE

- Autodesk Inventor
- SolidWorks
- Dell Laptop
 - Processor Intel(R) Xeon(R) W-11855M CPU @ 3.20GHz 3.19 GHz
 - Installed RAM 64.0 GB (63.7 GB usable)
 - Graphics Card NVIDIA RTX A3000 Laptop GPU (6 GB), Intel(R) UHD Graphics (128 MB)
 - System Type 64-bit operating system, x64-based processor

CONTRACT EXPERIENCE

- 2025 Sept- Current **DESIGNRESOURCES** Suwanee, GA
- Under NDA to design a Consumer Product for Grab Innovations and Services
 - Designed a Guitar Foot Pedal for Luke Engineering

- 2023 Aug - 2025 July **KTF Services, LLC** Judson, TX
- Weldment / Fabrication Drawings
 - Lower Pedestal
 - Upper Pedestal
 - Turning Head
 - Reflector Hub
 - Reflector Trusses
 - Designed Work Platform
 - Designed Electronic Controls Container

- 2019 Nov - 2023 March **ViaSat, Inc.** Duluth, GA
- Mechanical Design / Fabrication / Assembly Drawings for the Hub Waveguide System for Project Aruba
 - Mechanical Design / Fabrication / Assembly Drawings for the 24M & 19.7M Reflector Back Structures for Project Thunderbolt
 - Concept Layout for the Liquid Cooling System for Project Thunderbolt
 - Mechanical Design / Fabrication / Assembly Drawings for the Work Platform, Platform Support Structure, and Hand Railing System for Project Thunderbolt
 - Mechanical Design / Fabrication / Assembly Drawings for the High-Power Amplifiers for Project Thunderbolt
 - Managed Mechanical Interface for the Waveguide runs and Liquid Cooling piping with the High-Power Amplifiers on Project Thunderbolt
 - Designed Sheet Metal parts
 - Fabrication, Weldment, Sheet Metal, and Assembly Drawings
 - Geometric Tolerancing
 - Bills of Materials
 - Engineering Change Orders
 - Released Manufacturing Processing
 - Interfaced with Engineering, Purchasing, Shop Personnel, and Vendors

- July 2019 - Sept 2019 **CMC of GEORGIA** Toccoa, GA
- Design from scratch new Pushback TUG cab
 - Designed for sheet metal production
 - Made full use of Solidworks multibody sheet metal environment
 - Save Bodies used to link piece parts, assembly, drawings and original multibody part
 - Generated BOM and weldment documentation

- Mar 2019 - June 2019 **ZODIAC AEROSPACE** Alpharetta, GA
- Convert satellite antenna design and documentation from European standards to US standards
 - Modify designs as required
 - Modify fabrication drawings as required
 - Develop part numbering scheme
 - Generate new BOMs and assembly documentation

- Nov 2018 - Feb 2019 **MP EQUIPMENT** Gainesville, GA
- Develop proof-of-concept machine to automate forming processed poultry meat into poultry nuggets
 - Develop concept layouts
 - Develop details of fabrication, assembly, maintenance, and product change-over
 - Generate prototype fabrication drawings
 - Manage prototype assembly
 - Convert proof-of-concept into production model

- July 2018 - Nov 2018 **CANTRELL** Gainesville, GA

- Created parts manual documentation for poultry processing machines
- Started with a complex machine that was designed and modeled as a single top assembly
- The task was to break the top assembly into logical subassemblies
- Created subassembly models, exploded views, and bills of materials for each new subassembly
- Prepared documents for insertion into a manual

May 2018 – July 2018 **KD MANUFACTURING** Suwanee, GA

- Redesigned and documented industrial bush fabrication machine
- Replaced chain and gear drive system with a shaft and pinion gear system
- Eliminated lag in system and improved overall accuracy
- Redesigned weldment support frame to accommodate new drive

Nov 2017– May 2018 **SERTA SIMMONS BEDDING** Norcross, GA

- Reversed engineered a semi-automated mattress manufacturing machine
- The machine consisted of a conveyor system that integrated into a larger conveyor system
- The machine also had an automated gluing system with integrated controls
- Hands-on design, purchasing, prototyping, and documentation
- Developed machine certification procedures
- Managed controls development and programing implementation
- Developed training and safety manuals for factory use
- Created design, fabrication, and assembly documentation

2014 Dec– 2017 Nov **DESIGNRESOURCES** Suwanee, GA

- Developed a prototype water play-station for the autistic community
- Developed an “EyeGlasslight” for the consumer industry
- Designed a flour recovery system for the Bakery industry
- Developed a micro brush dispensary machine for the dental industry
- Designed and objective position system for an automated multi-axis microscope

2014 Sept – 2014 Dec **JBTC / Stork** Gainesville, GA

- Mechanical Designer on food processing tower designs / redesigns
- Designed 40” tall weldment structures
- Designed chain driven conveyor systems
- Created Weldment documentation
- Created Assembly documentations
- Created Assembly BOMs and released BOMs for procurement
- Worked with Product Stream data management software
- Converted design and drawing documentation from AutoCAD to Inventor
- Worked closely with Sales Engineering to generate cost proposals

2008 Dec – 2014 Sept **ViaSat, Inc.** Duluth, GA

- Mechanical Designer for satellite feed systems
- Specialized in designing waveguide systems
- Designed Metal Fabrications
- Designed Weldments
- Designed Sheet Metal parts
- Created Fabrication, Weldment, Sheet Metal, and Assembly Drawings
- Used Geometric Tolerancing
- Generated Bills of Materials
- Engineering Change Orders
- Released Documents for Manufacturing
- Interfaced with Engineering, Purchasing, Shop Personnel, and Vendors

2008 April - 2008 Nov **ReproProducts, Inc.** Smyrna, GA

- Applications Engineer supporting Autodesk Inventor and AutoCAD
- Conducted assessments and recommendations for Engineering CAD use
- Provided CAD network implementations
- Provided Software trouble shooting / problem solving
- Conducted beginning and advanced training classes for Inventor and AutoCAD

2007 Aug – 2008 April **ViaSat, Inc.** Duluth, GA

- Mechanical Designer for satellite feed systems
- Specialized in designing waveguide systems
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2007 May-2007 Aug **GTS Energy, Inc.** Atlanta, GA

- Mechanical Designer for developing Heat Processing Systems
- Systems included large sheet metal ductwork systems
- Configured Autodesk Vault for the engineering group
- Trained users on Vault
- Configured custom Content Center files

2001 Apr-2006 Dec **YKK-USA, Inc.** Marietta, GA

- Mechanical Designer for developing automation equipment to spool zipper product.
- GOAL: Spool at a rate of 2m/sec with a measuring accuracy of +/- 300mm.
- RESULTS: Spooling at 2m/sec with a measuring accuracy of +/- 50mm and product cost savings of \$100,000 /yr
- Mechanical Designer for modifying fly-installation prototype machine
- GOAL: Reduce number of parts of prototype by 25%.
- RESULTS: Reduced parts by 50%
- Mechanical Designer to develop a winding machine to automate the removal of an existing adhesive backing from a product, while attaching a wider adhesive backing to same product.
- Mechanical Designer to automate attaching zippers to wide fabric panels
- Provided Technical support for R&D group: Software Installation, Configuration, and Training.
- Created CAD standards that incorporated company workflow and procedures
- Implemented Autodesk Vault to improve reuse and overall efficiency of design data

2000 Jun-2001 Mar **Communications Management** Norcross, GA

- Mechanical Designer developing cell tower reinforcement structures that would allow additional carriers to be placed on existing towers.
- Assembled and trained a team of four mechanical designers on Autodesk Inventor software.
- Developed the standards for the engineering design group.
- Developed parametric driven design tables that linked spreadsheets to model files to automate 90% of the design and documentation processes.

1995 Feb-2000 May **Nordson Corporation** Duluth, GA

- Mechanical Designer for new control modules for the core application product line. The modules consist of a painted aluminum heat sink casting mounted with power, LED, and processor circuit boards and an electronic membrane panel. 50,000 units sold per year.
- Mechanical Designer for the concept adhesive applicator unit that is to replace the existing standard product line. The concept unit consists of a cast melting tank with an embedded stainless steel tubing assembly, an electric pump with detachable electronic controls, high impact resistant plastic enclosure, high speed application guns, and customer required access to only two sides of the unit.
- Created an engineering intranet site that linked assembly drawings made up of digital photos to BOM's, BOM's to fabrication drawings, and fabrication drawings to assembly drawings.
- Created Technical Support intranet site that contained contact information for support personnel, lists of parts available to field technicians, tech support bulletins with interactive photos, and a secure message board for posting questions and solutions for field issues.

1993-1995 **Reliance Electric** Athens, GA

- Sr. Designer on development of 500 HP DC motor drives.
- The drive is a system of high-powered transformers, capacitors, copper bus bar, and fan cooling systems housed in sealed enclosures

1986-1993 **Comsat RSI** Duluth, GA

- Mechanical Designer on 5-meter transportable satellite antenna system,
- 360 degree mount and positioner, 1.8 meter transportable antenna system.
- Evaluated AutoCAD and implemented it as the engineering design and drafting tool.
- Created engineering standards. Wrote custom AutoLISP applications to automate routine CAD tasks.

1984-1986 **Macom Prodelin, Inc.** Newton, NC

- Designed satellite antenna systems for the consumer market

1981-1984 **SatCom Technologies, Inc.** Atlanta, GA

- Designed satellite antenna systems for the commercial market

1978-1981 **Scientific Atlanta, Inc.** Atlanta, GA

- Created fabrication drawings from layouts
- Created assembly drawings
- Designed prototype for the VSAT antenna project

EDUCATION

1985-1986	Caldwell Community College	Hudson, NC
1983-1984	Oglethorpe University	Atlanta, GA
1976-1978	Dekalb Community College	Clarkston, GA

***References available upon request**