

Sean T. Manning

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SUMMARY

Mechanical engineer and designer with 18+ years developing complex mechanical systems, industrial enclosures, and process equipment — now pairing that expertise with self-built AI and automation tools that streamline engineering workflows. Currently designing components for the Leidos VACIS® MLX mobile X-ray inspection system, where I independently developed AI-driven tools for automated drawing-standards checking, BOM-to-drawing verification, and tolerance-stack analysis. Deep expertise across precision sheet metal, CNC machining, and casting, with a proven record of leading projects from concept through manufacturing and building software that eliminates manual engineering bottlenecks.

CORE SKILLS

- **AI & Automation:** Built local/offline engineering tools (HTML, JavaScript) and Claude-API-powered assistants for automated drawing QA and redlining, BOM-vs-drawing verification, GD&T/tolerance-stack analysis, and full-stack single-file web applications
- **CAD & Design:** SolidWorks, AutoCAD, Revit, Adobe Creative Suite, Visio, Microsoft Project
- **PDM & Data Management:** PTC Windchill, product data management (PDM) workflows, revision control, and engineering change processes
- **Mechanical Design:** Industrial enclosures (NEMA 12, 4, 4X), custom HMI integration, structural and sheet metal components
- **Hazardous Area Design:** Class 1 Div 1 / Zone 1 and Div 2 / Zone 2 environments with specialization in EX protection concepts
- **Process Equipment:** Reverse osmosis water purification systems for agricultural and potable applications, design from P&IDs
- **Manufacturing Processes:** Precision sheet metal, investment casting, sand casting, CNC machining
- **Regulatory & Compliance:** CE, UL1950, ISO, and FCC safety agency approvals
- **Leadership:** Team management, project management, vendor coordination, and direct customer engagement

PROFESSIONAL EXPERIENCE

Mechanical Engineer | Leidos (Security Enterprise Solutions) — Vista, CA

Mar 2022 – Present

Converted from contract (Compugain) to full-time Mar 2022

- As part of the engineering team, design mechanical components and assemblies for the Leidos VACIS® MLX mobile X-ray inspection system — a vehicle-mounted cargo and vehicle screening platform — supporting checkpoint and field-deployable inspection programs over the past three years.
- Develop detailed 3D models, drawings, and BOMs in SolidWorks with release and revision control managed through PTC Windchill PDM.
- Independently designed and built an offline, in-house verification tool (HTML/JavaScript, no external APIs) that cross-checks bill-of-material (BOM) quantities against balloon callouts on engineering drawings, catching count discrepancies before drawing release.
- Developed a Claude-AI-powered assistant that reviews drawings against industry and in-house drafting standards, automatically redlines non-conforming details, and performs tolerance-stack analysis on mating parts — reducing manual review time and improving release quality.
- Collaborate with R&D engineering on new product development and design iterations, including hardware supporting the Leidos-Analogic joint venture.
- Coordinate with external vendors to verify manufacturing specifications, resolve DFM issues, and maintain quality across the supply chain.

Mechanical Designer / Drafter | Applied Membranes — Vista, CA

May 2021 – Aug 2021

- Designed reverse osmosis water purification products from engineering-provided P&IDs using SolidWorks.
- Produced product specifications and BOMs, and coordinated with vendors to validate manufacturing requirements.
- Supported R&D initiatives and provided drawings and installation documentation to customers.

Engineering Project Manager | Spitzlift Portable Cranes — San Diego, CA

Oct 2009 – May 2021

- Led design and development of the company's full line of standard and custom portable crane products, taking concepts from rough drafts to working prototypes and production hardware.
- Project-managed custom builds end-to-end — interfacing directly with customers to translate requirements into production hardware while holding schedule, cost, and quality targets.
- Produced SolidWorks assembly animations used in marketing campaigns and trade show presentations.
- Owned all product specification documentation across the product line.

Chief Mechanical Designer | Pure-O-Tech — Escondido, CA

2010 – 2011

- Designed new reverse osmosis and nano-filtration water purification products in SolidWorks for agricultural, potable, and emergency-relief applications, supporting R&D development from P&IDs.
- Provided the sales team with project cost BOMs based on prospective customer requirements.
- Produced product specifications, BOMs, and site installation instructions and drawings; trained and mentored other designers.

Mechanical Designer / Drafter | Applied Membranes — Vista, CA

2009 – 2010

- Designed reverse osmosis systems from engineering P&IDs and produced drawings, BOMs, and specifications.
- Worked with vendors on manufacturing specifications and supported customer-facing documentation.

Product Development Engineering Consultant | Guest Technologies — Laguna Hills, CA

2006 – 2007

- Developed, tested, and integrated new products aligned with the company's target markets.
- Evaluated existing hardware for cost reduction, reliability, and performance improvements.
- Delivered a passive RFID cashless-sales solution integrated with the existing RFID location system, and integrated a new touchscreen solution for the kiosk platform.

Regional Sales Engineer | All American Semiconductors — San Diego, CA

2004 – 2005

- Served as primary technical resource supporting field sales personnel across the region.
- Led customer demonstrations and technical evaluations, and produced pre-sales and marketing documentation.

Director of Engineering / Project Management | Dolch Touch Controls — Fallbrook, CA

1996 – 2004

Progressed from CAD Designer through Design Manager, Engineering Manager, and Operations Manager to Director

- Managed a team of 7 designers and 3 engineers across all standard and custom product development, including complex programs such as one delivered for Johns Hopkins University.
- Coordinated with sales on project technical scope, costing, and scheduling.
- Delivered regular progress reports to the executive team and drove on-time program execution.

PROJECTS & INNOVATION

PryvitLedger — Personal Finance Web Application (self-directed)

- Independently designed and developed a fully offline, single-file personal-finance application (HTML/CSS/JavaScript, browser-local storage, no server dependency).
- Features automated debt-payoff strategy modeling (avalanche/balanced), day-by-day cash-flow ledger forecasting, overdraft and buffer-risk analysis, net-worth and 401(k)/savings-goal tracking, and an integrated Claude-API AI financial coach.
- Demonstrates self-taught full-stack development, applied AI integration, and end-to-end product design.

EDUCATION

MiraCosta College — Oceanside, CA

- Associate of Arts, Computer Aided Drafting and Design (2009)
- Certificate of Achievement, Computer Aided Drafting and Design – SolidWorks (2009)
- Certificate of Achievement, Architectural Technology – Revit (2010)

California State University, San Marcos — San Marcos, CA

- Business Administration coursework — Dean's List, Fall 2010

ADDITIONAL

Languages: English (native), Japanese (conversational). Professional references available on request, including client and executive letters from Hillyard Industries, Touch Controls (Dolch), and Pure-O-Tech.