

# Joseph C. Caswell

Whangārei, New Zealand

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## Professional Summary

With 10+ years in design automation (SOLIDWORKS, DriveWorks) and web development for manufacturing, I have a track record of creating impactful solutions, from custom DriveWorks plugins and project templates to full system automations. Eager to contribute to a New Zealand tech company focused on practical automation and process optimisation.

## Skills

- **CAD/Automation:** DriveWorks, SOLIDWORKS, FEA Simulation
- **Web/Programming:** HTML, CSS, JavaScript, TypeScript, Markdown, PHP, JSON, XML, VB/VBA, C/C++/Arduino
- **Tools:** IIS, Figma, VS Code/Cursor, GitHub, Wiki.js, DokuWiki, CPanel, Microsoft 365, Google Drive, GIMP
- **Soft Skills:** Project Management, Technical Support & Training, UI/UX Design, STEM Education & Mentoring

## Professional Experience

### Technical Solutions Consultant

**TPM** | Greenville, SC, USA / Whangārei, NZ (Remote) | October 2021 – Present

*Full-time until April 2025; currently part-time independent contractor (remote) due to relocation Consultancy for a SOLIDWORKS & DriveWorks Value-Added Reseller (VAR), focusing on design automation, UI/UX, and web technologies.*

- **Internal Process development for optimising DriveWorks deployment and efficiency**
  - Dramatically improved UI development efficiency in DriveWorks by creating a custom plugin that provided dynamic access to 14,000+ SVG icons, eliminating manual icon management and reducing project file clutter.
  - Developed a comprehensive DriveWorks unit conversion plugin supporting 162 units across 17 types (e.g., length, mass, temperature, file size), promoting DRY principles and enabling robust, error-free calculations for engineering, internationalization, and UI design.
  - Addressed critical gaps in DriveWorks' native user management by creating a project with secure, web-based self-service account capabilities (registration, password reset, email verification) and robust administrative oversight, leading to improved security, reduced admin workload, and greater user independence for multiple deployments.
  - Championed the adoption of web-standard UI/UX design principles (Figma, CSS) for DriveWorks projects, creating intuitive, brand-consistent interfaces that significantly boosted user adoption, minimized training needs, and enabled expansion to sales and public-facing configurators; presented this transformative approach at DriveWorks World 2024.
  - Spearheaded the development and adoption of a self-hosted internal knowledge wiki (Wiki.js), fostering team collaboration, standardizing documentation for processes, templates, and plugins, and enabling AI-assisted content creation; extended functionality to support secure, customer-specific documentation portals.
  - Pioneered and implemented a self-hosted AI platform (OpenWebUI) to centralize access to multiple LLM providers (OpenAI, Google, Groq), enable RAG capabilities with internal knowledge bases (including the company wiki), and evaluate potential cost savings and enhanced AI integration across the company.
  - Engineered a highly adaptable templating system from DriveWorks' corporate site example, enabling rapid deployment and client-led customization of 20+ unique instances. This innovative config-driven

framework empowered non-technical users to control extensive branding (theme variables, logos, carousels) and functionality (account management, SSO, feature toggles), drastically reducing deployment times and simplifying ongoing maintenance for customer-facing portals.

- **End-to-end DriveWorks implementation and automation**
  - Led full project lifecycle from requirements gathering to deployment and training
  - Automated SOLIDWORKS, email, and document processes for improved efficiency
  - Developed custom device-responsive branded user interfaces
  - Implemented public, private, and DMZ DriveWorks Live sites
  - Created comprehensive documentation and training materials
- **Delivered training and technical support for SOLIDWORKS**
  - Supported WNC SOLIDWORKS User Group as a reseller, including custom training and presentations

## Tool Designer

**Kearfott Corporation** | Black Mountain, NC, USA | March 2021 – October 2021 *Defence manufacturer of hyper-precise guidance systems; designed tooling for low-volume, hand-assembled components.*

- Designed, modelled, and drafted tooling for hyper-precision guidance systems used by American and Korean militaries
- Developed tools to measure accuracy and assist with high-precision hand assembly
- Collaborated closely with CNC programmers and machinists to achieve cost-efficient, tight-tolerance manufacturing

## Tool Designer

**Auria Solutions** | Old Fort, NC, USA | October 2017 – March 2021 *Global Tier 1 automotive supplier (vehicle interiors & insulation); designed tooling for high-volume, automated manufacturing processes.*

- Spearheaded process optimization initiatives, including:
  - Incorporating additive manufacturing into prototyping and production workflows
  - Developing custom SOLIDWORKS and Excel macros/templates to automate and accelerate design tasks
  - Creating custom Excel and CMD applications for simulation and data management
  - Using ProCAST simulation to optimize injection molding designs, reducing machining time and minimizing shot waste
- Designed, modelled, simulated, and drafted automotive manufacturing tools
- Generated CAD files for CNC machining and operated 3D printers for prototyping
- Designed and developed a website for internal software training materials
- Participated in a Kanban project that contributed to \$2+ million in annual savings for a single facility

## Engineering Intern

**EMC of NC, Inc** | Wake Forest, NC, USA | May 2014 – August 2014, May 2015 – August 2015

- Led full lifecycle digital transformation from paper inventory to online, mobile-friendly automated system using PHP
- Gained hands-on experience in manufacturing processes, from design through production
- Learned fundamentals of manual and CNC machining, producing custom parts for various industries

## Certifications

- **SOLIDWORKS:** Certified Expert (CSWE), Professional (CSWP) with specialities in Simulation, Visualize, and Technical Support
- **DriveWorks:** Certified Professional, Solo, and Xpress Associate
- **Web Development:** W3Schools Certified in Node.js, PHP, TypeScript, JavaScript, HTML, CSS, and XML
- **Other:** Foundations of User Experience (UX) Design (Google/Coursera)

## Education

- **Mechatronics Engineering** – UNC Asheville / North Carolina State University Joint Bachelor programme (2015 – 2017)
- **Mechanical Engineering** – Wake Technical Community College Associate programme (2012 – 2015)

## Honors and Awards

- Eagle Scout (Boy Scouts of America) – September 2013

## References

References available upon request.