

SHAAN WRENCH

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EDUCATION

Western University

Bachelor of Engineering Science (BESc) in Mechanical Engineering

With Option in Artificial Intelligence Systems Engineering (Co-op)

London, ON

Sept. 2024 – May 2028

- **Awards:** The Western Scholarship of Distinction (\$3500)
- **Relevant Coursework:** Algorithms and Data Structures, Software Design for Systems Engineers, Applied Statistics and Data Analysis, Product Design and Development.

TECHNICAL SKILLS

Languages & Tools: Python, Java, JavaScript, SQL, HTML/CSS, MATLAB, React, Git, GitHub, VS Code, Excel

AI & Data: Anthropic Claude API, Gemini API, Google Calendar API, Sports API, Basic Pitch (Spotify), audio-to-MIDI pipeline, data analysis

Web & Cloud: Cloudflare Pages/Workers, D1 (SQLite), R2, Supabase (PostgreSQL), Next.js, Stripe API, REST APIs, Vite, PWAs

Mechanical & Design: SolidWorks, Autodesk Inventor, GD&T, Tolerance Analysis, Design for Manufacturability (DFM)

EXPERIENCE

Manufacturing Intern

May 2025 – Aug. 2025, May 2026 – Aug. 2026

Bemco Machine Works LTD.

Mississauga, ON

- Designed and deployed a production quality-control system replacing an entirely paper-based inspection workflow, now used daily by 6 machinists across 5 tablets and the front office to document ~10 work orders per day.
- Built a full-stack React application on Cloudflare Pages, Workers, D1, and R2, implementing PIN-based user authentication, role-based permissions, and device-level access control for shop-floor kiosks.
- Engineered an automated tolerance-verification engine that parses mixed dimensional formats (decimals, fractions, one-sided and bilateral tolerances) and hard-stops production when a reading falls out of spec, replacing manual sign-off with enforced verification.
- Architected a three-stage inspection pipeline (casting → first-article → QA-approved-to-ship) with blind inspector verification, preventing operators' readings from being visible during independent re-measurement.
- Machined precision components on CNC mills and manual lathes to ± 0.001 in., and reverse-engineered legacy parts into SolidWorks drawings released to production — the shop-floor grounding the QC system was built on.

Founder

May 2026 – Present

Wrench Digital

Mississauga, ON

- Founded a web design agency for small trades businesses in the GTA, operating on a one-time build fee + \$25/month hosting model.
- Designed and shipped a full multi-page site (HTML/CSS/JS, Cloudflare Pages) for BEMCO Machine Works Ltd., a steel mill roll manufacturer, including hosting migration and DNS/email infrastructure recommendations.
- Built SiteGap, an internal lead-generation platform (Cloudflare Workers, D1, Next.js, SerpAPI) that identifies local businesses without a web presence, auto-generates demo sites, and converts leads through a Stripe checkout flow.

PROJECTS

Atlas – University Student Platform — Cloudflare Workers, Supabase (PostgreSQL), JavaScript, Claude API

- Built and deployed a university-verified student platform gated behind institutional email authentication, with dynamic per-school theming driven by email domain detection.
- Designed and migrated a PostgreSQL schema across 26+ migrations, loading 6,700+ Western course records; implemented real-time course chat and row-level security policies.
- Engineered a syllabus parsing pipeline (Claude Haiku) that extracts deadlines from uploaded PDFs and auto-populates a calendar at approximately \$0.006 per parse.
- Shipped weighted GPA tracking, flashcards, a PDF formula sheet generator, an algorithmic study block scheduler, and an installable PWA, architected on serverless infrastructure running at \$0/month.

Smartics – AI-Powered Study Planner — Python, Gemini API, Google Calendar API, Sports API

- Built a full command-line Python application that integrates the Gemini API, Google Calendar API, and SportsRadar API to automatically generate personalized study schedules around a student's syllabus, events, and favourite team's games.
- Designed a Gemini-powered study block generator scheduling 2-3 hours of daily study starting 7 days before exams, escalating to 5-6 hour sessions the final 2 days while avoiding conflicts with games; implemented Google Calendar OAuth2 to push color-coded events to a live calendar.

INTERESTS AND ACTIVITIES

Leadership: Prime Minister (Student Body President), Meadowvale S.S. — ran school events for 200–400 attendees, incl. the school's first offsite semi-formal; **SHAD** national design project — pitched to CEOs, won **\$1,000 prize** + Brilliant Catalyst Accelerator invitation; Toastmasters

Volunteering: MusicBox (music for children in care); Child Haven International (12 yrs, orphaned children in Asia)

Interests: FIRST Robotics, Automotive engineering, AAA Rep Baseball, Level 8 RCM Piano, Music production, Puzzles