

KAUSHIK TELIDEVARA

Mechanical Engineer | Singapore Citizen | Available July 2027
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SUMMARY

Hands-on mechanical engineer who takes hardware from blank sheet through design, build and test. 3D CAD and analysis in SolidWorks and Fusion 360: GD&T drawings, tolerancing and FEA; DFM/DFA, prototyping and vendor fabrication; electromechanical integration, motor control and embedded C++ and Python; test plans, validation testing and technical documentation.

EDUCATION

National University of Singapore – Graduating May 2027

Singapore

Bachelor of Engineering (Mechanical Engineering), Honours; Second Major in Innovation & Design

- GPA 4.5 / 5.0 (on track for Highest Distinction); Dean's List; NUS Outstanding Undergraduate Researcher Prize; College of Design and Engineering Innovation & Research Award (High Achievement); NUS Overseas Colleges Silicon Valley.

SKILLS

CAD & Drawings: SolidWorks (CSWA): 3D modelling, assemblies, engineering drawings; GD&T (ASME Y14.5, ISO GPS); tolerance stack-up analysis; BOMs; design reviews; PLM/PDM

Analysis & Simulation: FEA in SolidWorks Simulation and Ansys Mechanical (structural, mesh convergence, modal/vibration); CFD; thermal; MATLAB; Python; Excel

Design & Manufacturing: DFM/DFA; material selection; plastic part DFM; rapid prototyping (3D printing); CNC vendor release and inspection; sheet metal, laser cutting; injection mould maintenance; root cause and failure analysis; continuous improvement (lean, 5S, kaizen, DMAIC)

Mechatronics & Test: Mechanisms (ball screws, linear guides, linkages); O-ring sealing and pressure housings; stepper and servo motion; sensors, instrumentation and DAQ; design verification and validation; leak testing; test fixtures

EXPERIENCE

Rhoic – Mechanical Engineering Intern

San Francisco, CA

Pre-seed hardware startup (electrochemical reactor) | NUS Overseas Colleges Silicon Valley

Jan 2026 – Present

- Designed a 6061 aluminium reactor pressure housing in SolidWorks for a 10 bar design target, with five sealed interfaces and an isolated electrical feedthrough; designed for machining and inspected vendor CNC parts to ± 0.05 mm.
- Analysed the design before build with hand calculations and mesh-converged SolidWorks FEA, Ansys within 2.3%: safety factor 1.7 at 10 bar (6061-T6); specified a Rev B on a GD&T drawing, predicting 6.2 with 72% lower peak stress.
- Ran the leak-isolation campaign across five sealing interfaces until the housing held pressure, passing a 50 psi (~3.4 bar) pressure-decay leak test (under 1 psi drop in 30 min); fed V1's failures into the V2 design.
- Rebuilt the in-house electrospinner as an integrated five-axis, stepper-driven machine, cutting polymer use by ~75% and doubling output.
- Converted a desktop 3D printer into a 3-axis ultrasonic coating stage with Python motion control instead of a USD 50k+ commercial coater, raising estimated deposition efficiency from ~0.1–0.5% to ~30–40%.
- Built the lab's Raspberry Pi data-acquisition system (temperature, pressure, gas sensing and mass flow, logged to InfluxDB and Grafana), now the lab standard for measurement, monitoring and analysis.
- Automated the lab muffle furnace in 10 days on a Raspberry Pi 5: Eurotherm 3204 over Modbus RTU, 6 valves and a pump SSR on relays, Alicat mass-flow control, ~20 safety trips and a watchdog process; built for unattended 28 h runs.

Becton Dickinson – Engineering Intern

Singapore

Injection mould toolroom, high-volume medical device manufacturing

May 2025 – Aug 2025

- Led root cause and failure analysis of carbide core pin cracking using SolidWorks thermal and stress simulation and floor testing; proposed an offline, pre-assembled core pin changeover, adopted by the toolroom, that cut failures by over 70%.
- Isolated a 0.3 mm out-of-spec slider insert that halted a production line by inspecting against the drawing; ran preventive maintenance, changeovers and first-piece quality inspection on precision moulds.

PROJECTS

STRIDE: Stroke Rehabilitation Device – Team Lead and Mechanical Lead

NUS / Clemvision

Undergraduate research with industry partner Clemvision

Jan 2025 – Dec 2025

- Led the team that designed, built and tested a knee and hip rehabilitation device for SGD 807 in materials (commercial units from SGD 1,000): ball-screw knee drive (0–110°) and passive curved-rail hip module (30° abduction).
- Sized the structure for an 80 kg user, verifying the ball-screw slide and curved guide with ~2× margin; redesigned from trials with ten volunteers and built layered safety: end-stops, homing, e-stop, current-limited drive.
- Won the NUS Outstanding Undergraduate Researcher Prize and College of Design and Engineering Innovation & Research Award (High Achievement); presented to Minister of State Alvin Tan at ITAP 2025.

Galassia 5 6U CubeSat – Deputy Team Lead; Thermal Lead, Mechanical Co-Lead

NUS, Singapore

With NuSpace and OSTIn; passed CDR, launch planned Q2 2027

Jul 2024 – Dec 2025

- Owned thermal design and the power budget: MATLAB orbital heat-flux model, GMAT duty cycles and SolidWorks transient thermal simulation; a component-level model exposed the 27 W Ku-band amplifier as the critical hotspot.
- Selected a passive conduction-and-radiation heat path from a morphological chart and evaluated four passive heatsink iterations; co-led the three-person mechanical team through the critical design review.

ADDITIONAL

Teaching Assistant, EG1311 Design and Make (mentored 240+ students) | CSWP in progress | Languages: English, Hindi, Telugu; conversational French, Spanish