

# Ethan Xiao-xin Rosentreter

SENIOR MECHANICAL & AUTOMATION ENGINEER Singapore-based, Open to local & global roles  
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## Profile & Skills

Seasoned engineer with 5 years at Tesla bringing hundreds of parts from concept to production. Designed innovative, highly scalable parts for automated production, and led broad-reaching cross-functional initiatives, driving major cost reductions and performance gains. Now deepening expertise in robotics and next-gen manufacturing.

Mech Design	Manufacturing	Test & Rel	CAD	Simulation	Scripting & AI	Robotics
DFM/DFA, Materials, Prototyping	Automation, EOATs, Sensors, Pneumatics	DFMEA, DV/PV, Quality Control	CATIA, Fusion 360, Solidworks	FEA, Kinematic Modeling	Python, LLMs, C++, Arduino	ROS, OpenCV, MoveIt!, SLAM
10,000 hrs	3000 hrs	3000 hrs	5000 hrs	500 hrs	800 hrs	250 hrs

## Work Experience

Tesla, SR MECHANICAL DESIGN ENGINEER, THERMAL SYSTEMS Palo Alto, CA • 2023 - 2024

- Led mechanical design for next-gen Cybertruck and Robotaxi coolant systems, tackling aggressive performance and cost targets, novel automation goals, and integrated systems thinking on a timeline 3x faster than traditional OEMs.
- Drove end-to-end optimization from design to supply chain. Partnered with manufacturing to develop a 5s cycle-time hose install concept using a compliant EOAT, laying the groundwork for [robotics-driven, low OpEx production](#).
- Designed [sensor-integrated components](#) with IP68 seals and a [precision](#) bypass valve, improving tow efficiency. Pioneered ‘smooth’ tubing and contributed to Tesla’s patent-pending Dual Connector and Araymond’s ‘Wolf Trap’ clip.
- Dramatically [simplified coolant system from 21 to 10 parts](#) and cut cost by 41% vs. Model S while expanding scope and function. Reduced pre-cavitation flow losses 46%, saving millions in equivalent battery cost.
- Served as Tesla’s SME on coolant hoses, defining company guidelines, test standards, and advising executives, with hose material innovations adopted by wider industry. Mentored new employees, helping grow team from 2 to 6.

Tesla, MECHANICAL DESIGN ENGINEER, THERMAL SYSTEMS Fremont, CA • 2020 - 2022

- Owned end-to-end coolant hose design and sustaining across Tesla’s consumer vehicle lineup (Model S, 3, X, Y) with [50+ parts and 1M+/y vehicle volume](#). Managed full design cycle from development to root-causing service issues.
- Designed 50+ parts for Model Y ‘4680’ Structural Pack and Model S Plaid, including a low dP connector with 40% higher flow efficiency at 2/3 the cost, [saving Tesla over \\$5M/y](#). Refined designs with DFA feedback from NPI trials.
- Diversified Tesla’s supply base, partnering with supply chain to onboard two suppliers and enforce rigorous quality.
- Resolved [reliability](#) issues leveraging service reports, Weibull analysis, accelerated testing, and [hands-on](#) inspection, contributing to Tesla’s rise from industry-lagging to industry-leading in service rates for Model’s 3 & Y.

## Education & Early Career Highlights

University of Waterloo, B.A.Sc. HONOURS MECHANICAL ENGINEERING Ontario, Canada • 2013 - 2019

- Top of Class - Rank 1 or 2 in class by GPA every semester, earning President’s Scholarship of Distinction and others.
- RoboCup@Home Team - Programmed home robot for SLAM navigation and object manipulation using [ROS](#). [Link](#)
- Capstone Project - Designed and prototyped Counter Culture Essential Oil Extractor, earning recognition for engineering excellence and securing a spot in Canada’s largest startup incubator Velocity. [Link](#)

Tesla, DESIGN STUDIO, INTERN, Developed [pneumatic control](#) panel, deployed across 16 critical production lines. Los Angeles, W2018  
Tesla, VEHICLE STRUCTURES, INTERN, Validated new weld wire, resulting in an outsized \$23 cost down per vehicle. Palo Alto, F2017  
Toronto Transit Commission, Assoc. Eng., Designed and built Toronto’s 1st solar-powered IoT bus stop sign. Toronto, S2015

## Interests, Personality & Soft Skills

Raised in Canada I spent every spare moment snowboarding; now I enjoy surfing, live music, and tea-fueled philosophy. Some of my strengths are calm under pressure and being a thoughtful mediator. Currently learning Mandarin (HSK 4).