KRISTOFER TSAI

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EDUCATION

University of California, Los Angeles September 2024 – June 2028
Bachelor of Science in Mechanical Engineering | GPA: 3.8/4.0
Selected Coursework: Dynamics, Fluid Mechanics, Engineering Thermodynamics, Strength of Materials, Engineering Mathematics

MOTORSPORT TECHNICAL PROJECTS

Bruin Formula Racing | Los Angeles, California March 2026 – Present
Vehicle Dynamics Analyst | Formula Student

- Established BFR's first telemetry baseline, auditing 347 channels and ~29,000 rows for signal health and operating ranges.
- Sign-corrected and resampled inverter data at 10 Hz, yielding 0.9999 torque correlation and 0.17 Nm mean absolute error.
- Mapped powertrain operation, finding 81.3% of running at 1,500–3,000 rpm and 52.2% of positive torque above 60 Nm.
- Analysed BMS, coolant and inverter temperatures, finding 3.0–3.5°C rises, thermal lag and sensors sent for troubleshooting.

Formula 1 Race Strategy Analysis | Los Angeles, California June 2026 – Present
Independent Project

- Integrated FastF1 and OpenF1 lap, stint, tyre, pit, weather and race-control data in Python across three strategy studies.
- Calculated Mercedes' 0.98–1.14 s/lap VSC break-even target in Singapore; traffic and DRS defence constrained recovery.
- Decomposed Verstappen's Brazil 2024 P17-to-P1 recovery and measured a 0.70–0.97 s/lap final-stint pace advantage.
- Modelled Verstappen's France 2021 stop: 0.97 s/lap exceeded the 0.91 target, while a one-stop remained viable.

PROFESSIONAL EXPERIENCE

GovTech | Singapore January 2024 – June 2024
Cybersecurity/AI Intern

- Investigated LLM cybersecurity threats and defences, presenting findings to 50+ policymakers and engineers.
- Developed Singapore's first AI Playbook, adopted by 5+ agencies to standardise national AI deployments.
- Drafted technical memos on AI risk scenarios for 200+ government engineers and policy staff.

Singapore Armed Forces | Singapore January 2022 – November 2023
Soldier

- Served as Supply Assistant at Pasir Laba Camp, coordinating logistics for 500+ personnel during national service.
- Maintained and repaired military equipment in Specialist Cadet Schools, ensuring readiness for 1,000+ cadets.

RESEARCH & ANALYTICS EXPERIENCE

rideOS | San Francisco, California May 2020 – January 2021
Researcher

- Conducted machine-learning research on NBA game prediction under the supervision of a rideOS software engineer.
- Processed 1,200+ NBA games in Python and engineered 15+ features for predictive modelling.
- Evaluated six classifiers, including Naive Bayes and J48, using F-score to compare predictive performance.
- Achieved a maximum F-score of 0.61, outperforming baseline models by 12%.

Bruin Sports Analytics | Los Angeles September 2024 – Present
Data Analyst

- Analysed PGA Tour data to quantify the relationship between driving distance and scoring performance.
- Found driving distance explained little variation in scoring average after outlier refinement, with an R^2 of 0.02.
- Presented findings to 50+ attendees and published the study through Bruin Sports website.

DataRes | Los Angeles January 2025 – Present
Data Analyst

- Analysed 50,000+ dating-app reviews with VADER NLP, revealing a 25% COVID-era fall in positive sentiment.
- Built Matplotlib visualisations and presented consumer-behaviour findings to 100+ peers and faculty.
- Cleaned review text and compared sentiment trends across pre- and post-COVID periods using Python.

SKILLS & INTERESTS

Programming & Data: Python (Pandas, NumPy, Matplotlib, FastF1), OpenF1 API, MATLAB, C++, R, SQL
Engineering & Tools: SolidWorks, Telemetry Analysis, Data Validation, Git/GitHub
Activities: UCLA Club Golf, UCLA Club Tennis, Formula 1, High-Performance Driving (HPDE)