

# Ananya Salian

## Education

### Bachelor of Science

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Jan 2024 - Present

#### The University of Melbourne, Melbourne, Australia

- Major: Statistics & Stochastic Processes
- Relevant Coursework: Algorithms and Data Structures, Linear Algebra, Corporate Finance
- Planned: Machine Learning, Linear Statistical Models, AI, Engineering Mechanics, Investments

## Research Experience

### AI Researcher

Jan 2025 - Present

- *FaceSafe: Privacy-Compliant Inpainting Pipeline for Scalable Image Datasets:*
  - *ICML 2025 WiML & DIG-BUG*, first co-author; built a context-preserving inpainting pipeline enabling large-scale privacy-preserving facial dataset augmentation.
  - Mentored by a Meta FAIR researcher and an ML Researcher at Brown University (Algoverse Collaboration)
- *RAVEL: Receipt-Anchored Verifiable Evaluation Ledger:*
  - Sole author, protocol for auditable, pre-label certify-or-abstain evals under covariate shift using PSIS-k/ESS diagnostics and self-normalized IS.
  - Evaluated on 19 text, graph and molecular benchmarks, achieving ~3-13x reduction in test universes at fixed PPV floors, recovery of stable importance weights, conversion of many NO-GUARANTEE cohorts to certified PPV floors, on a single CPU machine.
- *MoE Router Interpretability:*
  - Studying failure modes in MoE routers as toy models of latent misalignment, focusing on hidden misaligned experts and deceptive modes
  - Mentored by Deepmind-funded AI safety researcher and Oxford Postdoc
- *ML for Drug Discovery:*
  - Analysing robustness and uncertainty in semi-supervised GNNs under Bemis–Murcko scaffold shift, across ADMET and physiochemical datasets.

## Skills & Interests

- Programming & ML: Python, PyTorch, TensorFlow, Scikit-learn, Hugging Face, PyTorch-Geometric, RDKit
- Technical Areas: Privacy-preserving ML, Certified evaluation & reliability, GNNs, Semi-supervised Learning, Model Calibration & Uncertainty
- Research Interests: Model robustness, interpretability, statistical evaluation, and computational chemistry.
- Self-study: ARENA AI Safety Curriculum (mech interp, scalable oversight, robustness)

## Non-Research Experience

### Consulting Intern

Dec 2023 - Present

#### Crysp Consulting, Australia

- Contributed to a cybersecurity RFP (~ \$250K) for government clients in APAC & EMEA regions
- Conducted threat analysis and drafted reports for organizations in the medical and health sectors
- Compiled and edited client deliverables and public material on cybersecurity risk assessments

## Other Projects, Programs and Achievements

- Jane Street INSIGHT Trading Program Participant
- Kliqtek Scholarship Recipient of HEX Youth Entrepreneurship Program: Built credit scoring ML model (MAPE 1.88%), pitched ML-fintech startup; awarded full scholarship
- Personal Project Web Applications:
  - Diamond Value Estimator (RF Regression,  $R^2 = 0.975$  on 50k+ dataset)
  - Options Pricing and GBM Stochastic Modelling Web Application
- Trading and Investment Competitions
  - Citadel Securities Trading Invitational (Top 20), UBS x Morgan Stanley Finance Accelerator (3<sup>rd</sup> and 4<sup>th</sup> place)

## Leadership & Outreach

- Sponsorship Director: HackMelbourne (2024 - 2025)
- Publications Officer: Finance Students' Association (2024)
- External Relations Officer: StartUp Link (2024)
- Division Director - Interact Rotary International (2020-2024)