Avaneendra Trivedi

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EDUCATION

Thapar Institute of Engineering and Technology *Patiala, Punjab*
B.E., Electronics and Computer Engineering *Sep 2022 – Jun 2026*
GPA: 8.99/10
Relevant coursework: Corporate Finance & Markets; Quantitative Finance; Portfolio Theory; Optimization; Probability & Statistics.

SKILLS

- **Quant:** Operator Estimation, Constrained Convex Optimization, Spectral Decomposition, System Identification, Falsification Protocol Design, Factor Models, Time-Series Analysis, Probabilistic Forecasting, Signal Engineering
- **Tools/Tech:** Python, CVXPY, CLARABEL, Polars, FastAPI, TimescaleDB, Parquet, MLflow, DVC, Git, SQL
- **Finance:** Market Microstructure, Asset Pricing, DCF, LBO, M&A, Trading Comps, 3-Statement Modelling, Risk Diagnostics

EXPERIENCE & PROJECTS

Reflexivity Kernel Spectroscopy - *Market Microstructure, Quant Research* *March 2026 – Present*

- Built a novel market-state instrument estimating the multiscale flow-to-price transfer operator Kt under hard admissibility constraints (cumulative PSD, reciprocity, stability) , achieving 100% admissible window survival, 76–82% OOS R-squared, and 75–82% reflexivity share; published on SSRN (Abstract 6450561, April 2026)
- Decomposed realized covariance into endogenous flow-driven fragility vs. exogenous information with a pre-registered falsification suite, deterministic CVXPY+CLARABEL solve, and full DVC artifact lineage. Website

Constraint Shadow-Price Tomography - *Fixed Income, Intermediary Finance* *March 2026 – Present*

- Reconstructed latent constraint dual state Lambda from cross-market LOOP wedges (CIP, Treasury basis, swap spreads); peaked at 152.91 on March 27 2020, causal identification p = 0.000777. published on SSRN (6457180, April 2026)
- Proved cross-market constraint coherence via held-out out-of-family prediction: Lambda estimated from CIP + Treasury only priced withheld swap spreads to 3.10 bp MAE; coordinate separation confirmed by jackknife at 2.6%. Website

Admissible World Deformation Field - *Quant Research, Market Measurement, Admissibility Modeling* *Feb 2026 – Present*

- Built a cross-market primitive measuring minimum deformation of implied futures into a jointly admissible world , formal QP solver, hard breach 9.6e-5, falsification pass rate 1.0, 21 persisted runs
- Engineered deterministic KKT dual tension extraction, analog retrieval over 95 live-public episodes (top-1 = 0.621), and a memo-ready API surfacing failure artifacts before favorable results, admissibility as product behavior. Website

Deal Nexus Engine - *Systemic Deal-Cascade Simulator, Risk Propagation* *Jan 2026 – Present*

- Built a graph-based simulator modeling how M&A and financing shocks propagate across supplier, customer, competitor, credit, and market layers; surfaced concentration, transfer paths, and risk-ranked nodes.
- Stress-tested historical replay, deterministic seeds, dataset versioning, and before/after network-state comparison to audit fragility under alternative transaction assumptions. Website

LEADERSHIP, AWARDS & CERTIFICATIONS

- **Head Prefect & Red Cross Secretary** - Mobilized **5,560** volunteers; ran **7** drives/year across **12** villages; upgraded school-to-village coordination and execution cadence.
- **Global Collaborations** - Led programs across **U.S., Argentina, Korea, Turkey, France, United Kingdom and Russia**; delivered **4** sessions/year to **700**+ students; owned scheduling, content, reporting.
- **Awards** - Duke of Edinburgh's Award (**Gold**); Int'l English Olympiad (**World Rank 56**); National Cyber/Science/Math Olympiad merits; Yale Young Global Explorers (Cambridge); RBI Financial Literacy NFLAT.
- **Certifications** - McKinsey Forward Program; Columbia University Financial Engineering & Risk Management; HEC Paris & AXA IM Investment Management; Yale Financial Markets.