Dennis Kim, CFA

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Ph.D. candidate in Computer Science with a quantitative finance and applied machine learning background. Research centers on decision making under uncertainty, human-in-the-loop learning, and reward function learning. Experienced in formulating research questions, designing controlled experiments, and validating models using statistical and computational methods. Background spans econometrics, stochastic modeling, optimization, and reinforcement learning, with applications to decision-making systems and financial markets.

EDUCATION

Colorado State University 2024 – Present
PhD Candidate in Computer Science, GPA: 4.0
Clubs: CFA Society

New York University, Tandon School of Engineering 2021 – 2023
Master of Science in Mathematical Sciences
Clubs: CFA Society of New York (Quantitative Investing Group)

TECHNICAL/QUANTITATIVE SKILLS

- Quantitative modeling: optimization, time series analysis, stochastic modeling, causal inference
- Machine learning: reinforcement learning, reward modeling, preference learning
- Statistical inference: experimental design, ANOVA, regression, hypothesis testing
- Programming: Python (numerical computing, simulation, ML), R; experience with scientific computing libraries

RESEARCH PROJECTS

Trust in AI-Assisted Planning Under Epistemic Dependence (ongoing)
- Designed and executed a 160+ participant user study examining trust dynamics when relying on AI-assisted advisors.
- Implemented conditions with automatic, expert-invoked, and no AI assistance.
- Operationalized trust using validated epistemic trust scales, entity-specific trust ratings, and continuous trust judgments.
- Analyzed condition-level differences using ANOVA and pairwise t-tests, focusing on statistically interpretable effects.
- Extending the experimental framework to higher-stakes settings (e.g., finance) to study how trust dynamics scale with risk.

Reinforcement Learning from Human Feedback: Guided Reward Function Learning (current)
- Built an end-to-end RLHF pipeline in CartPole, training policies from learned reward functions instead of constructed rewards.
- Trained an MLP reward model from pairwise trajectory preferences using custom oracle feedback.
- Optimized policies with PPO, evaluating whether preference-learned rewards induce correct control behavior.
- Using this setup to study reward misspecification and policy-reward misalignment in controlled settings.
- Extending the framework to allow users to directly steer reward learning through preference feedback.

RESEARCH & PROFESSIONAL EXPERIENCE

Graduate Research Assistant - HAPI Lab, Colorado State University Current
- Lead researcher on a multi-condition, 160+ participant trust study involving large-scale behavioral data.
- Support lab members with statistical modeling, regression analysis, and experimental design.
- Translate theoretical research questions into testable quantitative frameworks and validated empirical results.

Mathematics and Computer Science Tutor - Independent/Wyzant 2023
- 500+ hours of student tutoring in computer science fundamentals, linear algebra, and statistics.
- Diagnosed and corrected conceptual misunderstandings in mathematical modeling, algorithmic thinking, and statistical inference.
- Broke down complex ideas into step-by-step logical structures, focusing on assumptions, edge cases, and interpretation.

Data Scientist Intern - Woori Juntos 2022
- Analyzed 1,000+ survey responses combining demographics, structured items, and free-text to inform targeted outreach programs.
- Applied two-way ANOVA to identify how issue salience varied across respondent groups and topic categories.
- Built an NLP pipeline using FastText to cluster free-text responses into issue-based groups beyond demographics.
- Used language patterns from clustered responses to support downstream analysis and guide outreach framing.

Finance Related Experience
- Morgan Stanley Smith Barney - Financial Advisor Associate
  BOKF Financial - Portfolio Manager I / Securities Sales Specialist
  Bank of Oklahoma, N.A. - Credit Analyst II
  - Applied quantitative risk governance to portfolio construction, allocation, and oversight across $300M in AUA.
  - Contributed to the underwriting and analysis of a $1.2B syndicated loan, evaluating credit risk and financial structure.