PROJECT LAB

Winter, 2025

AGENDA

Presenter’s Bio

Project A

Project B

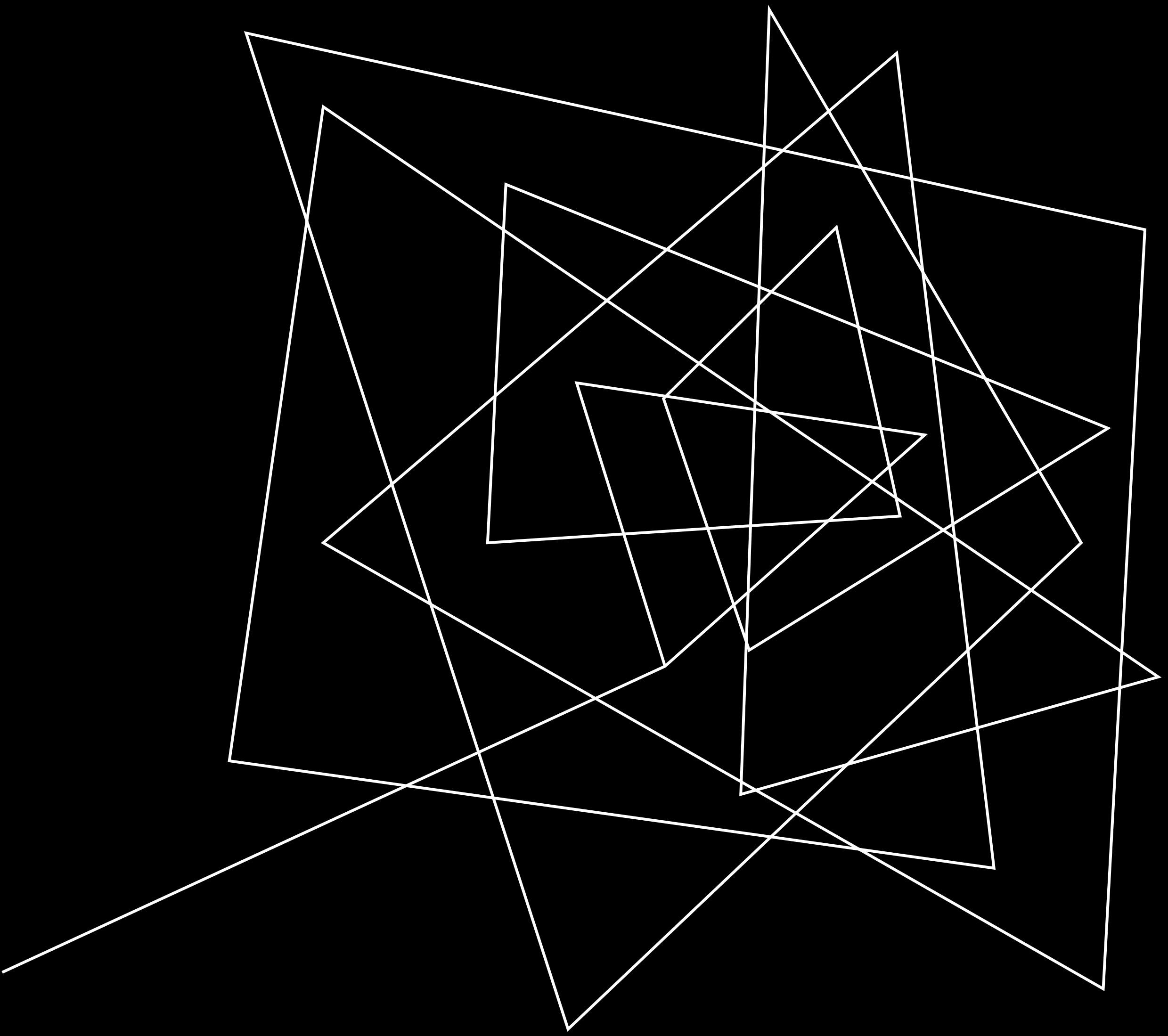
BIO

2017: MS in Financial Mathematics, University of Chicago

2018: Hired as cross-asset Quant for Principal Financial Group (Iowa, US) through a listing on FinMath job portal

2019-2022: Principal International, Santiago, Chile

2022-Present: Principal Asset Management, KL, Malaysia



SYSTEMATIC TECHNICAL ANALYSIS

Project A

SYSTEMATIC TECHNICAL ANALYSIS

MOTIVATION

1. **Profitability:** Augment directional bets with entry/exit rules
2. **Scale**: Application to a wide range of assets and sub-assets
3. **Efficiency**: Automation of investment workflow

LEARNING FOR STUDENTS

1. **Asset Pricing**: Understand standard models of asset pricing: Black-Scholes SDE, Heston and Bates model
2. **Bloomberg:** Understand functions such as GP, BT, EQS, EQBT, FTW
3. Practical applications and limitations of asset-pricing model and Bloomberg functions

EXPECTATIONS/DELIVERABLES

1. **Back-testing:** Define and backtest strategy based on Bloomberg trender for variety
2. **Identify pitfalls**: Mathematically, characterize pitfalls of trender signal
3. **Iterate and improve**

ILLUSTRATION: TRENDER STUDY ON GOLD (XAU CURNCY)

INTERACTIVE ASSET ALLOCATION

Project B

INTERACTIVE ASSET ALLOCATION

MOTIVATION

1. **Hyper-customization:** Construct portfolio suiting individual investment needs and risk appetite
2. **Efficiency**: Automating portfolio construction process

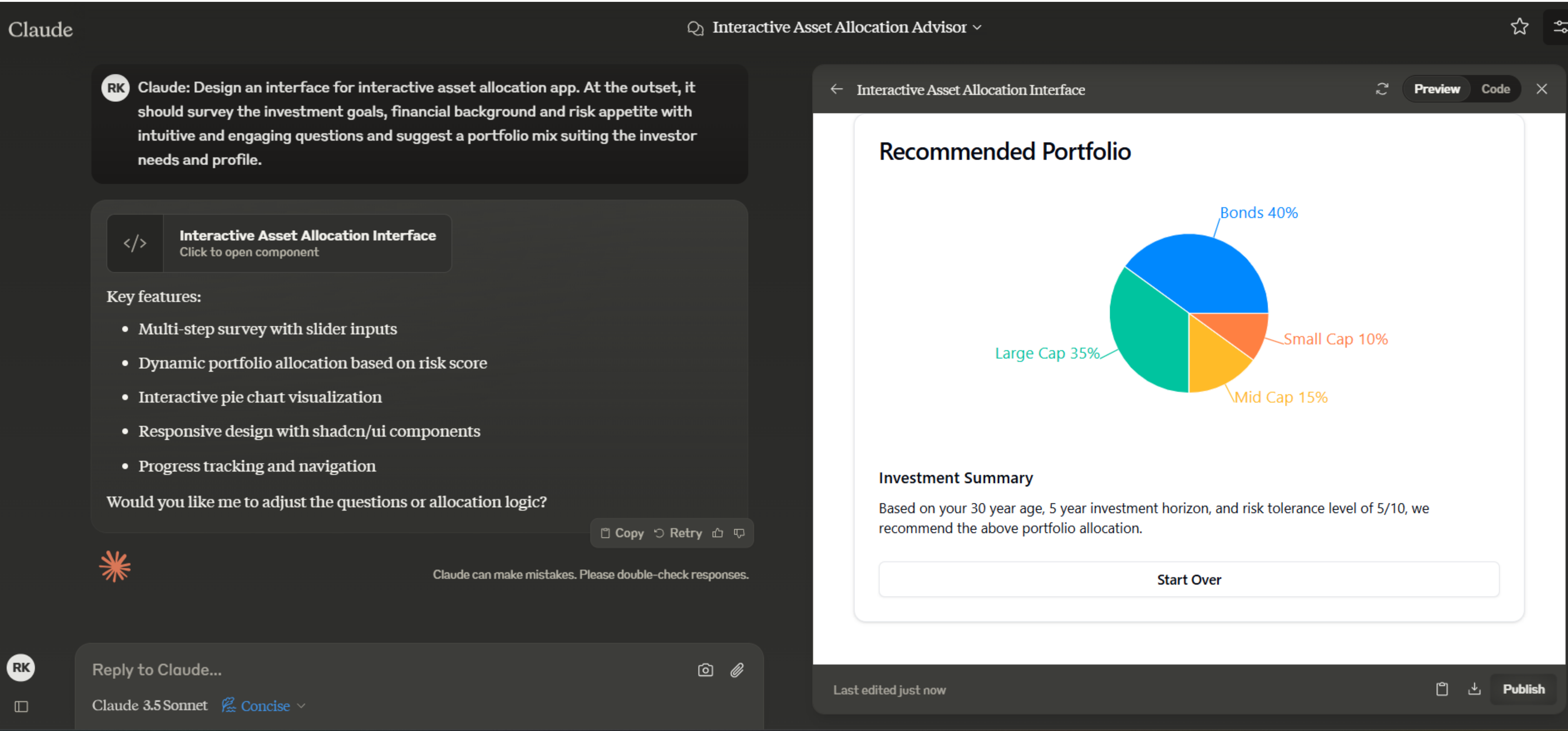
LEARNING FOR STUDENTS

1. **Systematic portfolio construction**: Understand importance of estimating returns, risk and correlation for achieving target returns/risk. Consequently, understand different portfolio construction techniques: MVO, risk-parity, etc.
2. **ChatGPT/Claude:** Use LLMs for building prototypes

EXPECTATIONS/DELIVERABLES

1. **Survey questionnaire:** Interactive questionnaire to understand investor profile and needs. Responses to be recorded from natural language (desirable) or preset inputs
2. Develop a mechanism to convert qualitative information to quantitative
3. Build an interface that connects with portfolio construction module

ILLUSTRATION: INTERACTIVE APPLICATION USING LLM



THANK YOU

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