



## **IntentLens: AI-Powered Intent-Driven Product Discovery**

IntentLens is a consumer-facing web application that translates natural-language user intent into structured search criteria, retrieves real-world product data via third-party APIs, and applies multi-stage AI reasoning to rank and explain the most relevant options. The project demonstrates how large language models can be orchestrated alongside external data sources to support informed, explainable decision-making rather than opaque recommendations.

# Intent Breakdown in Product Discovery



Consumers often approach product discovery with incomplete, subjective, or situational intent. They may know what they want to achieve, but not the exact terms, specifications, or filters required to express that intent effectively in a search interface. Traditional keyword search and faceted filtering systems assume users can translate their needs into precise inputs, leading to friction, frustration, and suboptimal results. This slide establishes the mismatch between human intent and system expectations that IntentLens was designed to address.

# The IntentLens Approach



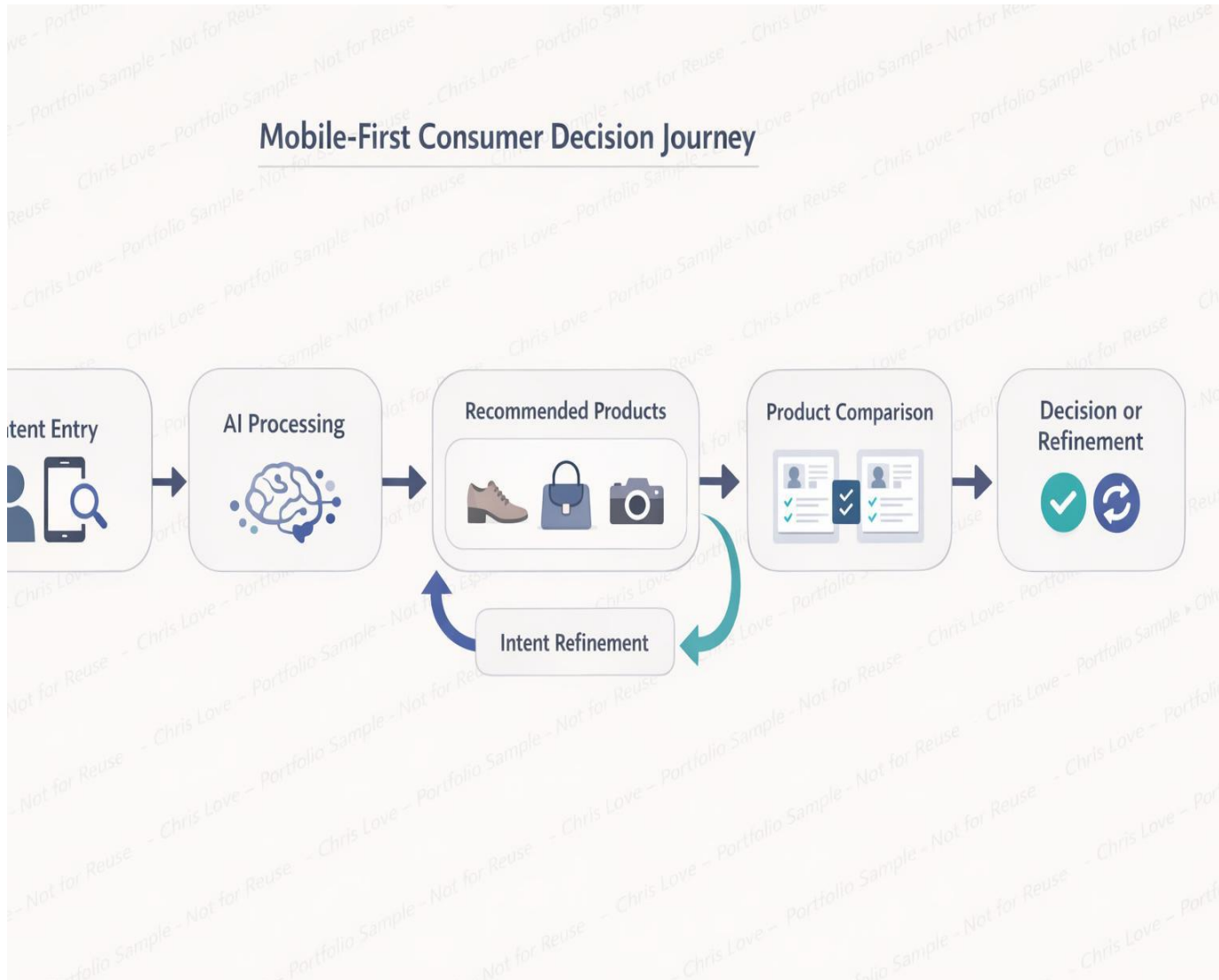
IntentLens approaches product discovery as a translation and reasoning problem rather than a search problem. Instead of forcing users to adapt their thinking to rigid filters or keywords, the system first interprets natural-language intent, then uses that structured understanding to retrieve real-world product data. AI is applied in multiple stages to compare options, reason about tradeoffs, and explain recommendations in plain language. This approach preserves user agency while reducing cognitive effort and decision fatigue.

# AI Orchestration & Decision Flow



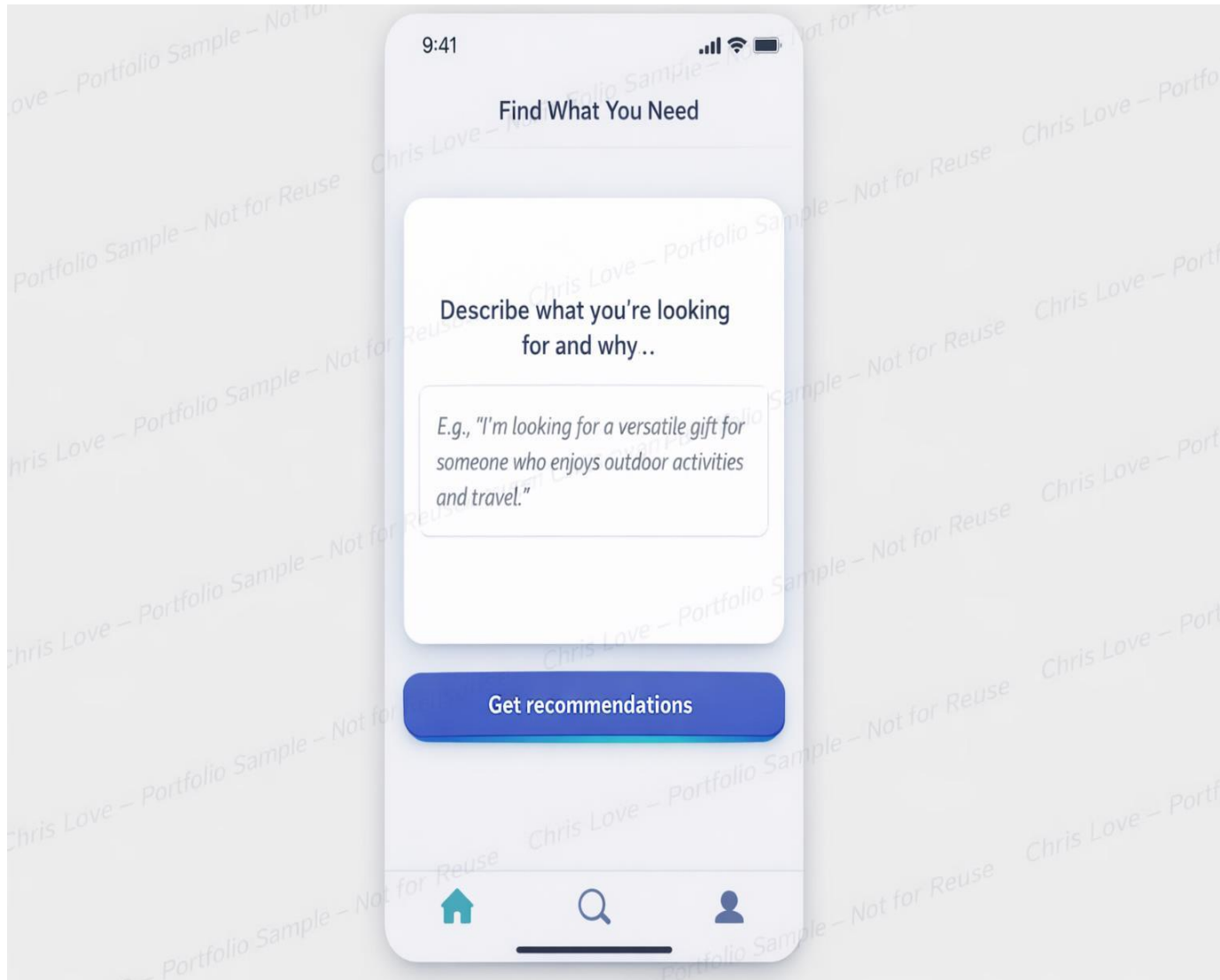
This diagram illustrates the multi-stage orchestration approach used by IntentLens to translate user intent into ranked, explainable recommendations. The flow begins with natural-language input, which is interpreted into a structured internal intent model. That intent drives retrieval of candidate products from external data sources. AI is then applied again to compare, rank, and reason about those candidates in relation to the original intent. The diagram emphasizes separation of concerns, data grounding, and explainability rather than a single opaque AI step.

# User Intent to Recommendation Flow



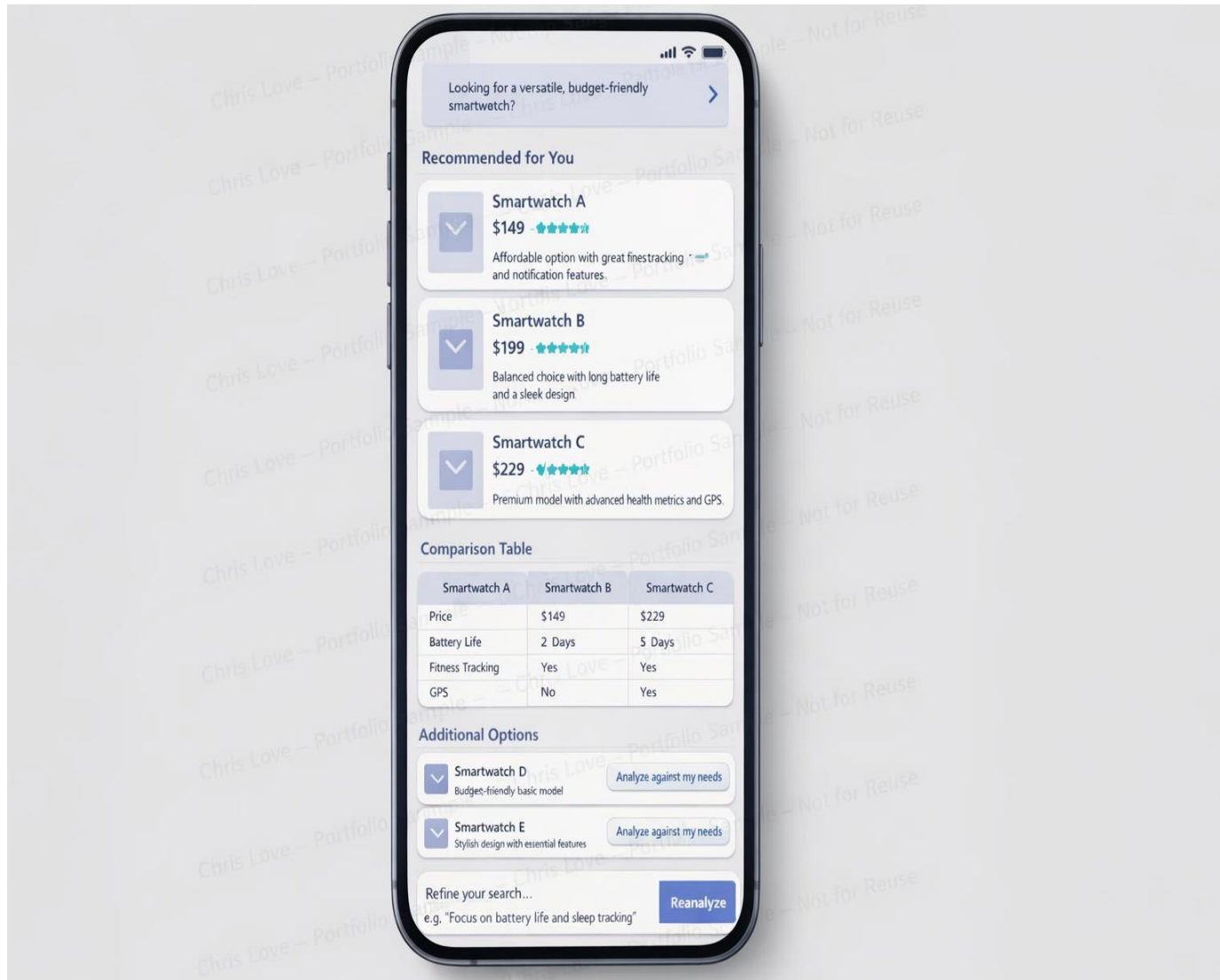
This user flow diagram illustrates how a consumer interacts with IntentLens to move from vague intent to confident product decisions. The flow begins with natural-language intent entry, followed by AI-assisted recommendation results. Users can review ranked options, understand why they were recommended, compare products, and optionally refine their criteria without restarting the experience. The diagram emphasizes iterative exploration, transparency, and user control rather than a rigid step-by-step funnel.

# Intent Entry / Search



This screen is the primary entry point for IntentLens. Users describe what they are looking for and the context around their decision in plain language, without needing to know specific product terms or filters. The interface is intentionally simple and mobile-first, encouraging natural expression rather than structured input. By focusing on intent rather than keywords, the screen sets the foundation for AI-assisted reasoning and downstream comparison.

# Recommendations & Results



This screen presents the outcome of the IntentLens reasoning process. Users are shown a small set of AI-ranked recommendations, each accompanied by a clear, human-readable explanation of why it fits their stated intent. As users scroll, they can optionally view a side-by-side comparison of the top options and explore additional candidate products retrieved from the underlying data source. A persistent input area allows users to refine or adjust their criteria, supporting iterative exploration without forcing a new search.