Lily ai ™
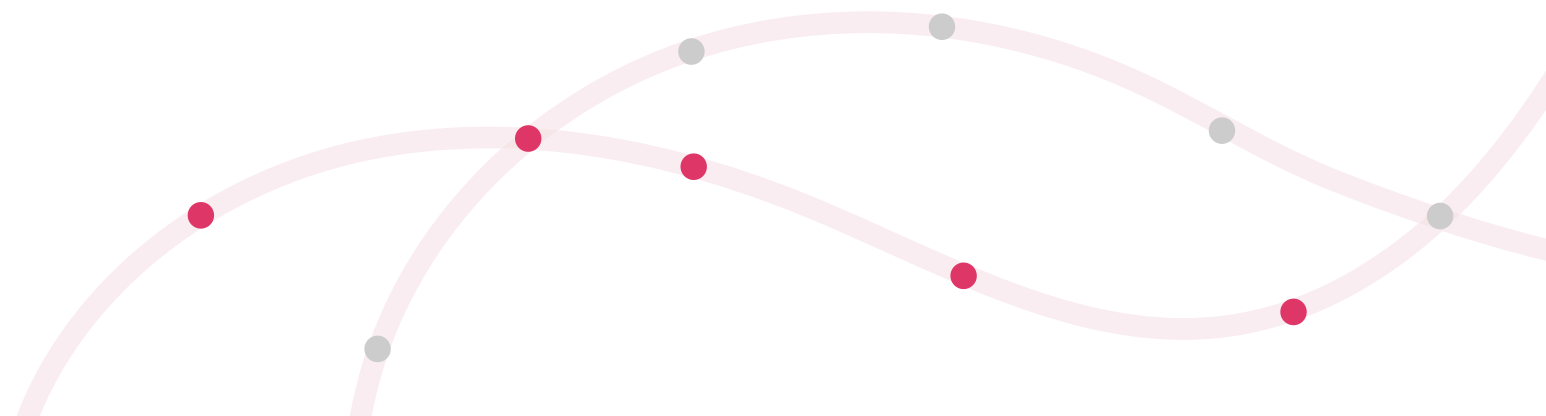
# ThredUp Advances the Secondhand Shopping Experience with Lily AI

# THRED<sup>UP</sup>

**ThredUp** is the world's largest online secondhand shopping destination with thousands of like-new styles from popular brands at up to 90% off estimated retail. The company adds more than 40,000 authentic new arrivals to the site every day, specially curated by style experts.

## HIGHLIGHTS

- **Created a better search and navigation experience** with accurate attribute tagging for more than 1 million unique items per month

- **275,000+ images tagged** in an average week

- Pilot achieved consistent inventory **sell-through lift of 4% to 15%** across different product dimensions

- **Improved operational efficiency** and ability to scale the business

- **Provided new inputs into pricing algorithm** to optimize revenue and sell-through

- **Adding personalized recommendations** based on deep customer profiles

# Problem: Millions of Unique Items, Thousands of Ways to Look for Them

With more than 100,000 items arriving every day from sellers' closets, ThredUp must categorize and tag products at tremendous scale. Its inventory includes more than 50,000 brands and hundreds of categories, each with dozens of attribute groups—any of which could lead a buyer to the item she wants. "We need to think carefully about how our customer wants to shop our website," says Chris Homer, co-founder and CTO at ThredUp. "How does she want to engage with our products? How can we show the right garment to the right person? We need to describe and tag our inventory with objectivity and accuracy."

ThredUp associates, working in distribution centers across the United States, inspect each item that arrives from a seller's closet and create a unique product description for it. Before ThredUp began working with Lily AI, the associates were also responsible for tagging inventory items with all of the attributes that the site uses for buyer navigation, searches, facets, and filters. This process could be time-consuming and required a robust QA process to ensure a good customer experience.

Homer leads a team of software engineering and data science experts who work together to eliminate the friction from consignment selling. He knows that search and navigation are critical to his customers. However, he aims to keep internal resources focused on technology and algorithms that are unique to ThredUp's business. "We need to invest in our pricing algorithms, scoring of seller merchandise, and garment routing in the distribution center—critical profitability drivers that are unique to us," Homer says. "When it comes to personalization and recommendations, which involve customer behavior, products, and affinities that are relatively consistent across retailers, we want to find the best partners."

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## Solution: AI-Driven Deep Tagging

While the company had conducted pilots of technology-based tagging solutions, it had not yet found a solution that met its goals for accuracy or reliability until it began working with Lily AI.

Homer's team evaluated Lily AI Deep Tagging through a pilot with women's tops, a product category containing a wide variety of styles and used for diverse occasions. They wanted to understand the quality that Lily AI algorithms could deliver as well as how the solution would improve the efficiency of human taggers.

## Results from Initial Pilot

ThredUp evaluated the pilot's success in:

- Tagging accuracy, assessed based on the number of errors caught by associates or reported by customers

- Sell-through lift (measured as percentage of units sold during the pilot period) generated by having additional attributes available in navigation and search. ThredUp performed a split test to measure sell-through by displaying its shopping interface with and without the additional attributes identified by Lily AI Deep Tagging.

The split test showed a sell-through lift of four to 15 percent. Based on these results, Homer's team made the decision to expand Lily AI Deep Tagging across all of its product categories.
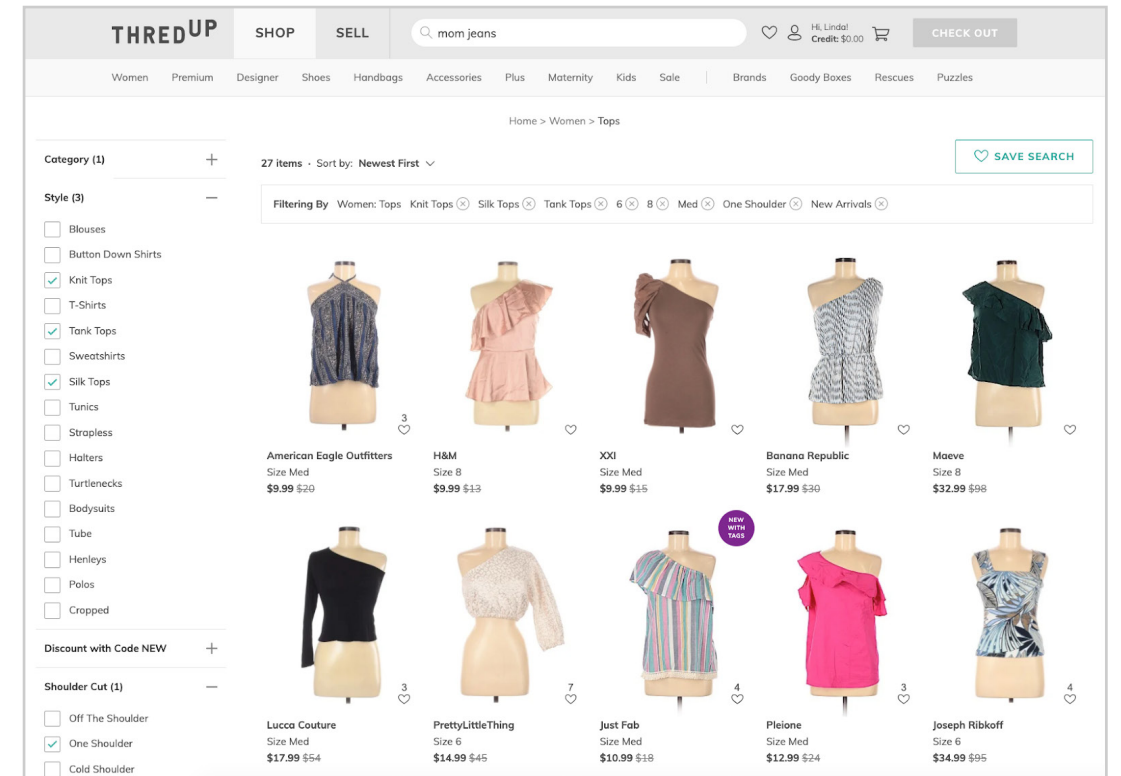


**Women's tops have many attributes that make them attractive to a particular shopper.**

## More Ways to Guide Customers to the Perfect Choice

With Lily AI Deep Tagging, customers now have two to three times as many attributes to search and explore as they look for the perfect outfit. On average, Lily AI tags about 275,000 images each week. "I think that every customer wants a more personalized experience, with tools that help them quickly find their way to the products they want," Homer says.

## Improved Operational Efficiency and Scale

Operational efficiency has been another important benefit for ThredUp. With a growing business, ThredUp did not want to put the tagging burden on its associates in the distribution centers. Lily AI Deep Tagging has reduced the training requirements for ThredUp associates and reduced QA for newly added products, so they reach customers faster. "It's like removing extra weight from the system, and that makes a bigger and bigger difference as we scale up," Homer adds.

## New Signals to Set the Right Prices

Furthermore, ThredUp is able to use extended attribute data from Lily AI in its pricing algorithms, which are critical to sell-through. The algorithms now have more signals to assess the value of and expected demand for a particular garment that a seller has consigned.

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"It all needs to start with the customer. The context of what she is trying to accomplish—her progress in refreshing her closet or finding a specific piece for an event—does not come from segmentation alone. Lily AI Deep Profiles understands what our customer is trying to do and offers the right recommendations to her, not products she doesn't actually want."

**Chris Homer**
**Co-Founder and CTO, ThredUp**

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## Contextual Recommendations with Lily AI Deep Profiles

Today, ThredUp is using Lily AI tags as inputs for targeting and segmentation capabilities that Homer's team has built in-house. In addition, the site will soon start displaying product recommendations with Lily AI Deep Profiles.

"Segmentation is a good way to start understanding your customer, but no person is made up as immutable attributes," Homer explains. "The customer's recent signals around brand, category, attributes, and price affinity make personalization more powerful and more accurate. We're optimistic that Lily AI Deep Profiles will allow us to provide a tailored shopping experience that our customers will perceive as truly helpful."

## A Commitment to Great Customer Experiences

In Lily AI, ThredUp found a partner who shared its vision of using data to understand customers, anticipate their desires, and give them the individualized shopping experience they want. "We enjoyed working with the team at Lily AI on this project," Homer notes. "Our partnership was a big contributor to our initial success."

## About Lily AI

Lily AI helps brands, from specialty brands to big box stores to resale marketplaces, see customers as they see themselves. Its solution combines deep product tagging with deep, real-time psychographic analysis to determine the active state of mind of each shopper. A women-founded startup headquartered in Mountain View, California, Lily AI is backed by Canaan Partners, NEA, Fernbrook Management, and Unshackled Ventures.

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**See your customers as they see themselves**