Corinium

DataCon Africa 2022
7th Edition

Recommender Systems

Deploying recommender systems into production, and measuring the results

DINO BERNICCHI

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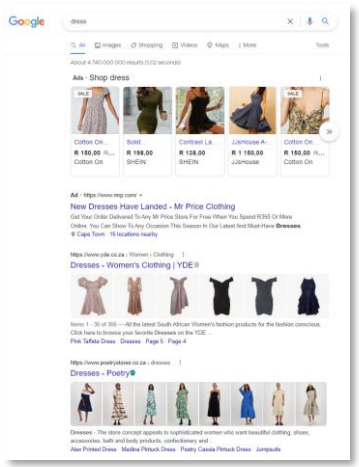
Recommender Systems

Digital Content

E-Commerce (On/Offline)

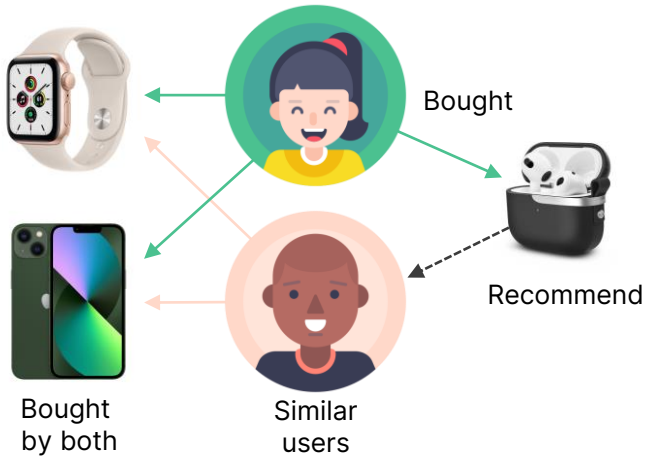
Social Media

Online Advertising

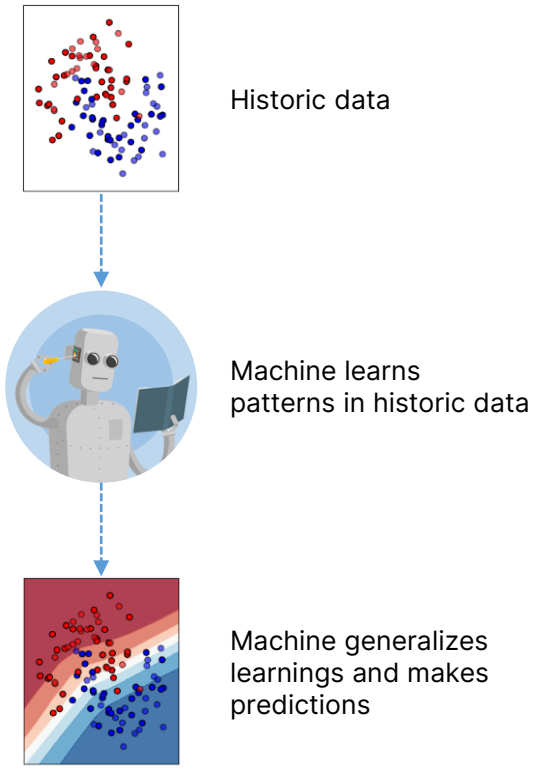


Typical Methods Behind Recommender Systems

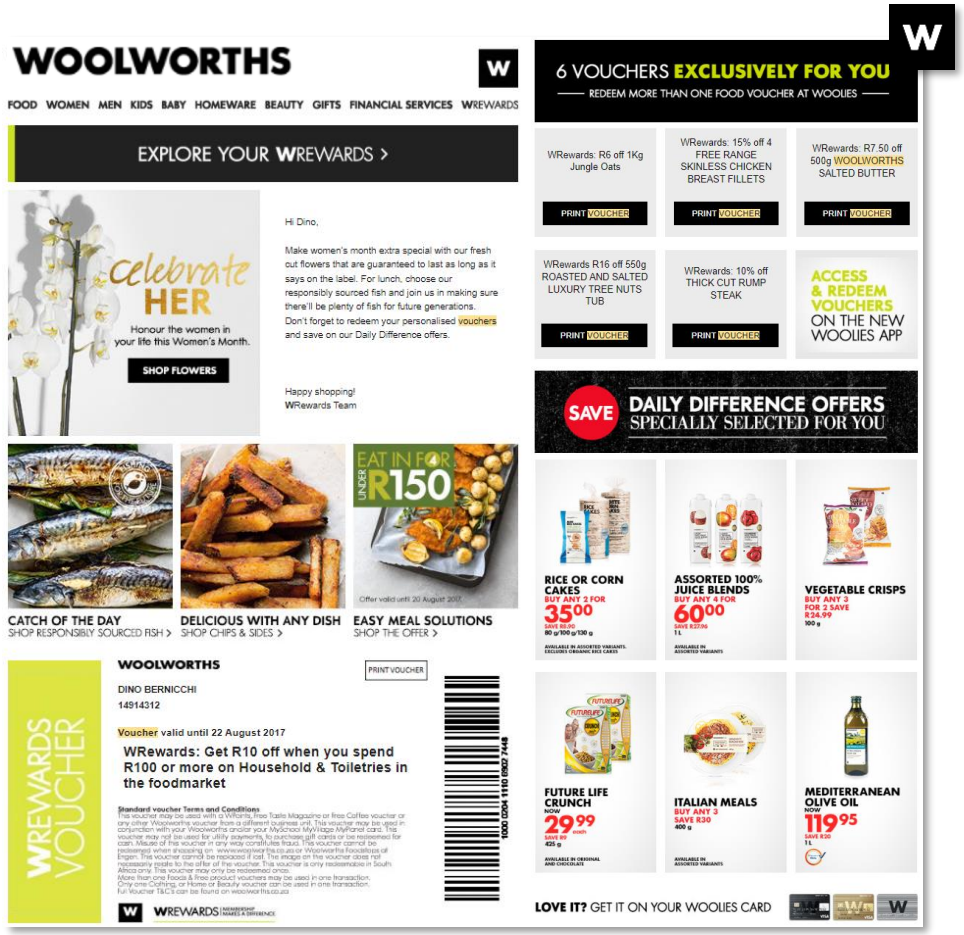
Neighborhood-Based

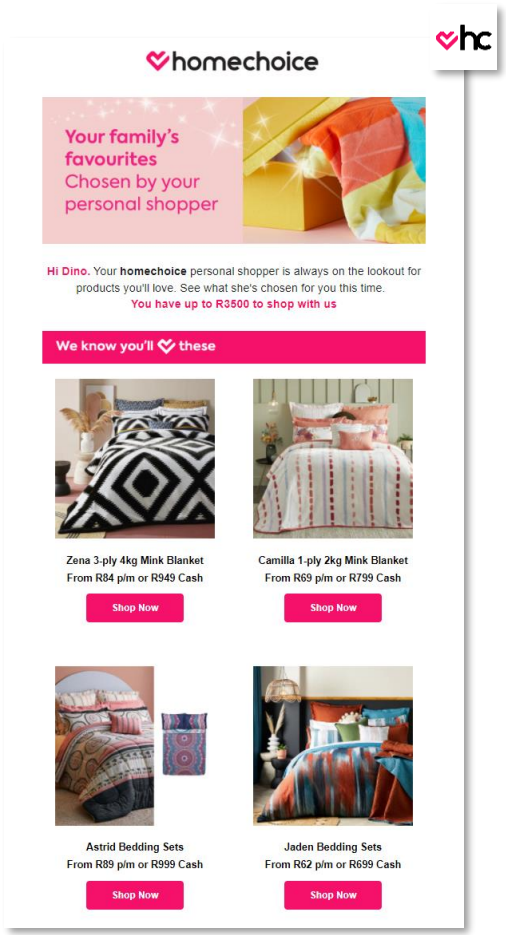


Model-Based



Hybrid Examples





Powering The Change

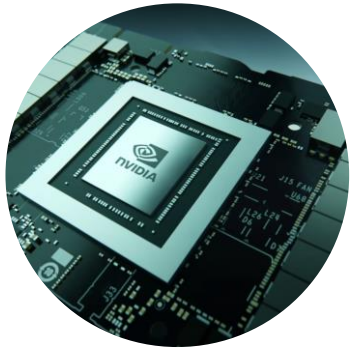
Programming Paradigm

AI is software that writes software

Data Modernization

Big data collection, organization and operationalization

Accelerated Computing

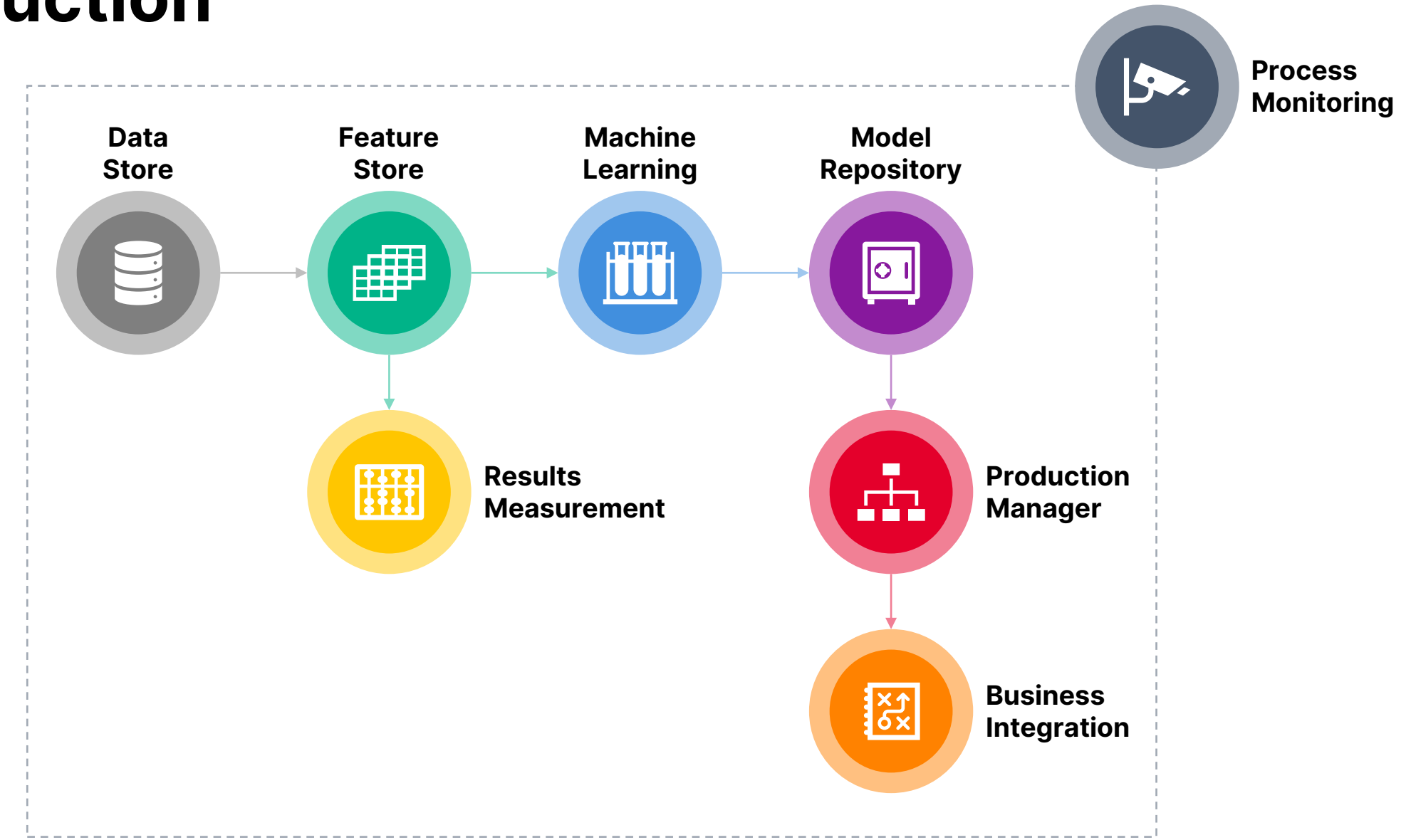


80x GPU improvement over CPU in a few years

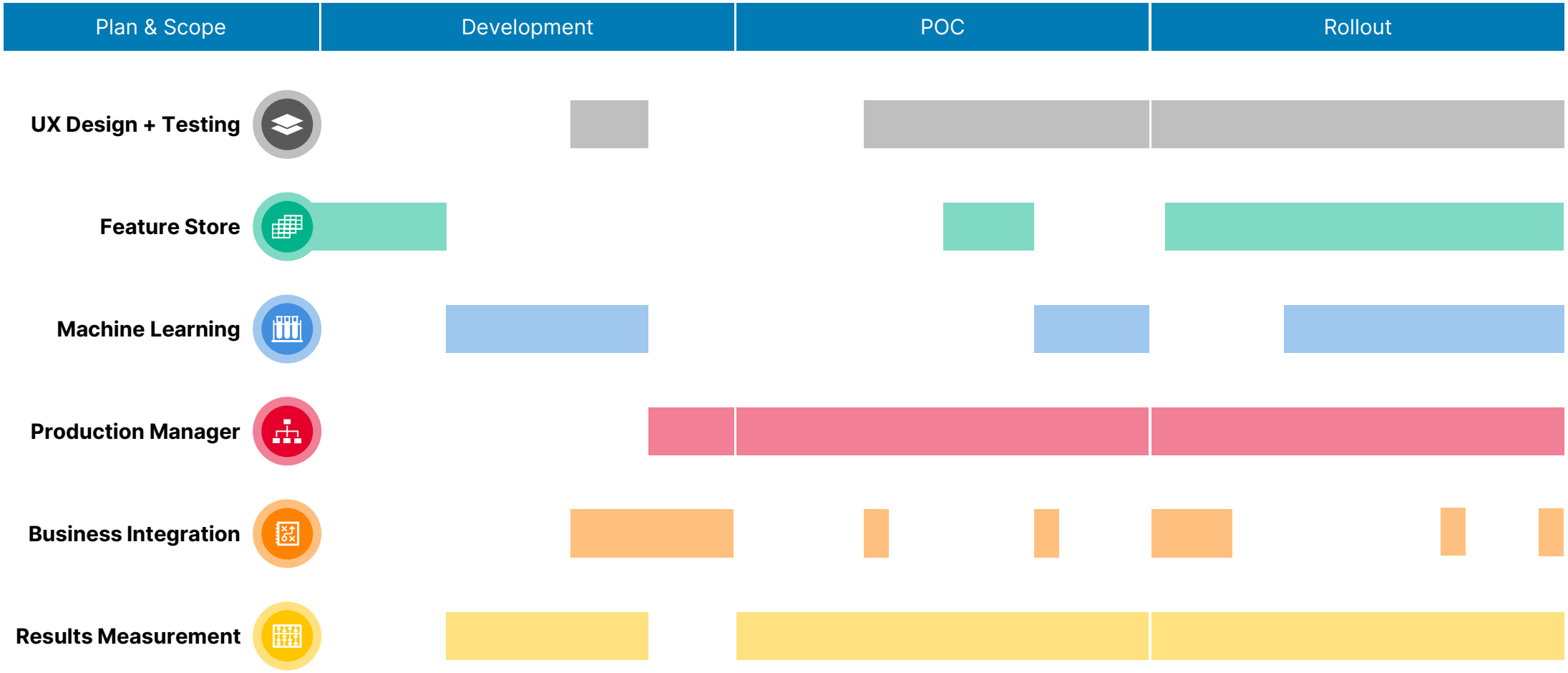
Best Practice AI Production

From concept to integrated and scaled product

AI Production



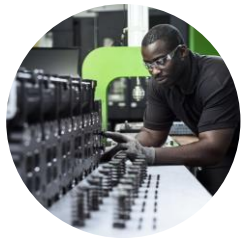
Development and Deployment Plan



Tracking Performance

Model Development

Model Production

Model Training	Model Testing	Model Validation	Retro Testing	Shadow Scoring	POC	Production
						
Training data	Data not used in training	Unseen data	Train on one period, validate on a future period	As if the model was live	Live – small sample or single channel	Live – full rollout

Structured Approach To Results Measurement

Build Test Framework

Flexible
Scalable
Reusable

Select Test Groups

A/B selection
Test grain
Reselection horizon

Estimate Uplift Drivers

Track key metrics
Est. behavior change
Explain calculations

Calculate Profit & ROI

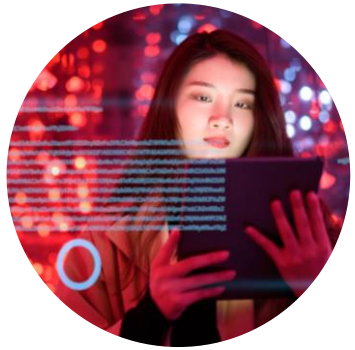
Convert uplift to profit
Work with Finance
Business buy-in

Typical Production Problems

1. Over engineering
2. Loss of critical data feeds
3. Manual execution
4. End-user internet / data constraints
5. Not measuring results
6. Slow rollout – lack of momentum
7. Underestimating the costs

Common Recommender System Flaws

Significant Data Requirements



Sparse User-Item Data

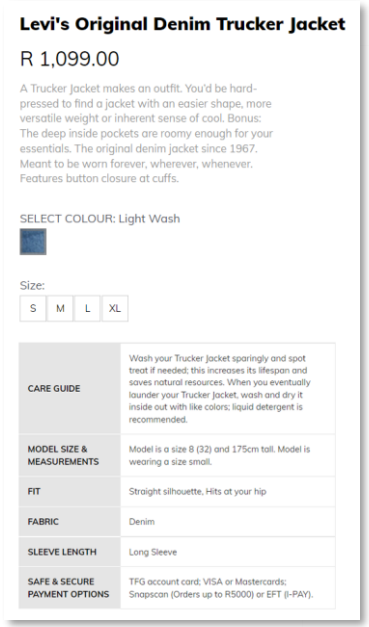
Missing Product Data

User/Item Cold Start Problems

Long Payback Period

Perception-Based Recommenders

Natural Language Processing systems understand product name, brand, description, pricing, sizing, fit, & other text-based data



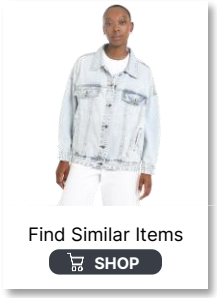
Additional product shots augment image data

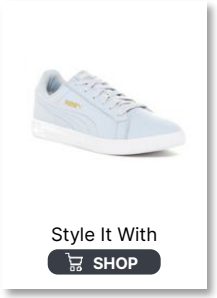
Computer Vision systems understand image composition, color, gender, style, design, shape, size, material, branding, & other image-based data

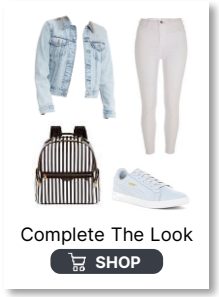
GAN inpainting improves image occlusions

01110010 01100101 01100011
01110011 01111001 01110011
01110100 01100101 01100011

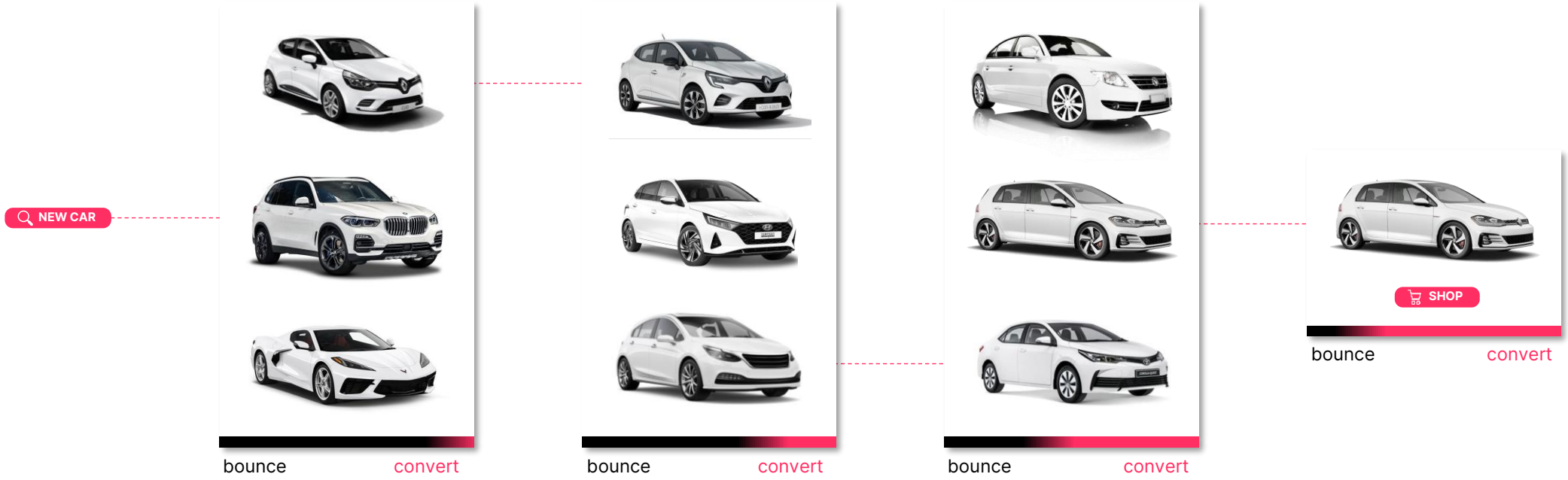
Unstructed data embeddings allow real-time processing







Session-Based Recommenders



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