Smart Product Sorting for Camper's eCommerce

Think UPC
One Step Ahead
in the Digital World

Using reinforcement learning techniques, ThinkUPC has helped Camper optimize the shopping experience across its digital channels. This AI-driven solution automates the sorting of product grids by adapting in real-time to user behavior. This allows the brand to showcase items with the highest probability of success, increasing the website's economic performance by up to 4%.

The Challenge

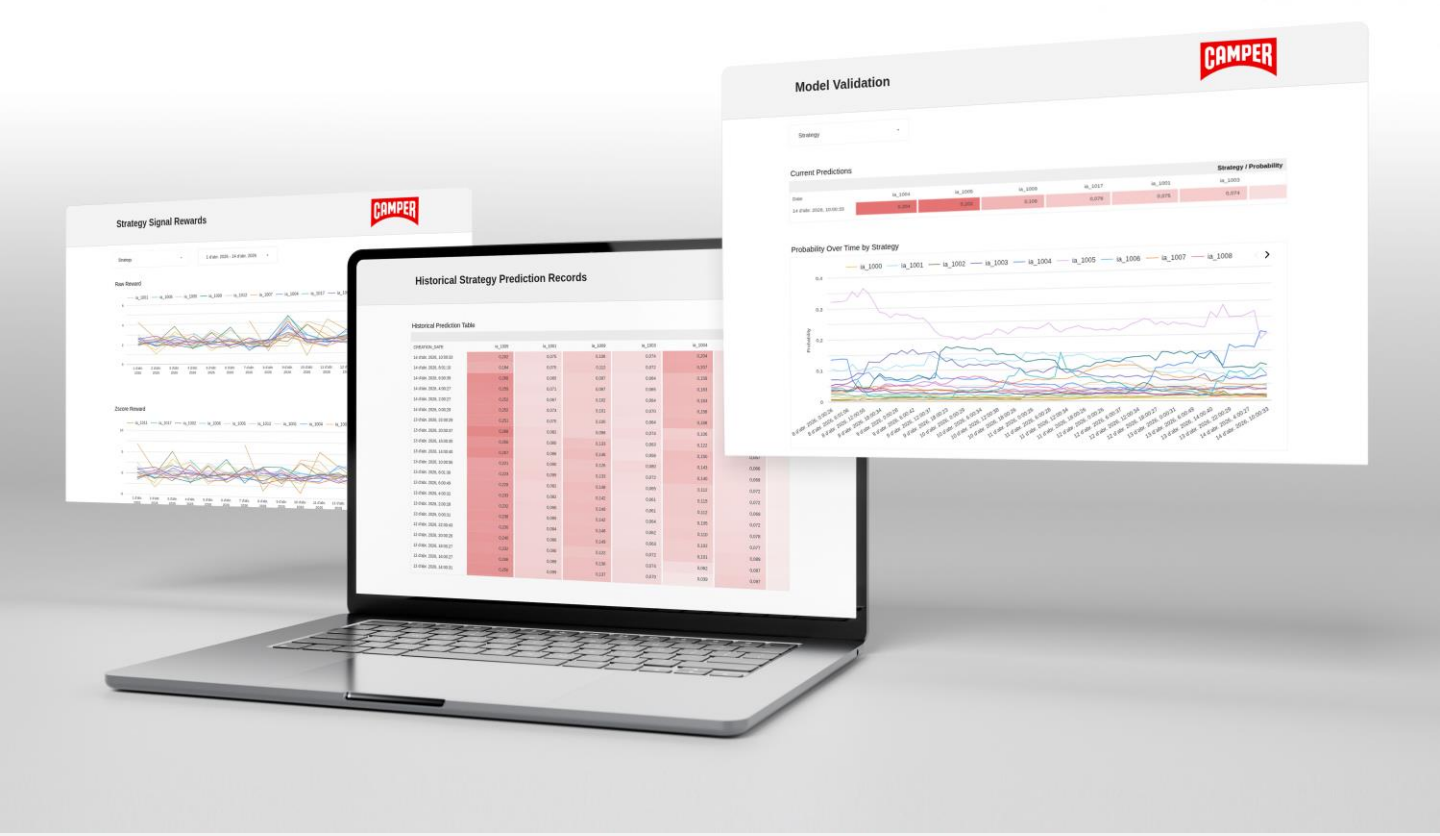
Camper is a leading international footwear design and manufacturing company with over forty years of history and a consolidated global presence built on a constant focus on innovation and quality. Within its digital ecosystem, **product grid sorting** is a key element for maximizing sales and ensuring a seamless user experience.

Previously, sorting was managed through manual configurations and static weights, a model that lacked agility in the face of market trends. Therefore, the project's main objective was to develop a system capable of **automatically adapting product sorting** based on actual user behavior. The major challenge was **optimally allocating visits among different sorting strategies**, continuously learning which ones yielded better results according to business metrics while ensuring operational stability.

The Project

To meet this need, ThinkUPC designed and implemented an applied **AI solution based on reinforcement learning techniques**. The system focuses on active learning algorithms that allow the platform to make autonomous decisions regarding which product configuration to display at any given time. The project was built around three main pillars:

- **Dynamic Traffic Allocation with Thompson Sampling**: Using a *Multi-Armed Bandit* model, the algorithm learns which sorting strategies generate the best results based on user interactions. Every two hours, it calculates a traffic distribution among strategies, which is cached to ensure that product sorting remains stable and consistent.
- **Reward Function Based on Key Interactions**: The model makes decisions based on a combination of user metrics: product views, add-to-carts, and purchases. This ensures that selected strategies do not just drive clicks, but also improve final conversions.
- **Performance Monitoring and Supervision**: A control system was established to analyze probability history, weighted regrets (measuring potential profit lost during the exploration phase), and model confidence levels. This ensures the system's behavior remains logical, secure, and predictable.



The Results

The implementation of this AI solution has delivered tangible benefits for Camper:

- **Increased Profitability**: Achieved an improvement of up to 4% in net profit compared to previous sorting strategies.
- **Real-Time Adaptation**: Product grids now adjust dynamically to actual user behavior with automatic updates every two hours.
- **Operational Efficiency**: Automation has drastically reduced reliance on manual processes for web inventory management, freeing up resources for higher-value tasks.
- **Control and Traceability**: Advanced dashboards in Looker Studio facilitate continuous performance monitoring, enabling the Camper team to make strategic decisions based on verified, real-time data.

If you want more information,
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