Sight Machine Scheduling Agent

Real-time agentic insights that improve throughput and reduce changeover time for high mix production lines by optimizing production schedules

High-mix production lines face constant challenges from frequent changeovers between different products, each requiring machine reconfiguration, tooling changes, and quality checks that create significant downtime. Managing hundreds or thousands of product variants on the same equipment becomes exponentially complex, with dynamic demand changes and real-time process variations making static schedules quickly obsolete. Without intelligent scheduling optimization, these lines can spend 30-70% of their time in changeover activities rather than actually producing.

The Scheduling Agent creates optimized production schedules for high-mix environments by balancing changeover efficiency, machine utilization, and delivery constraints to maximize overall throughput.
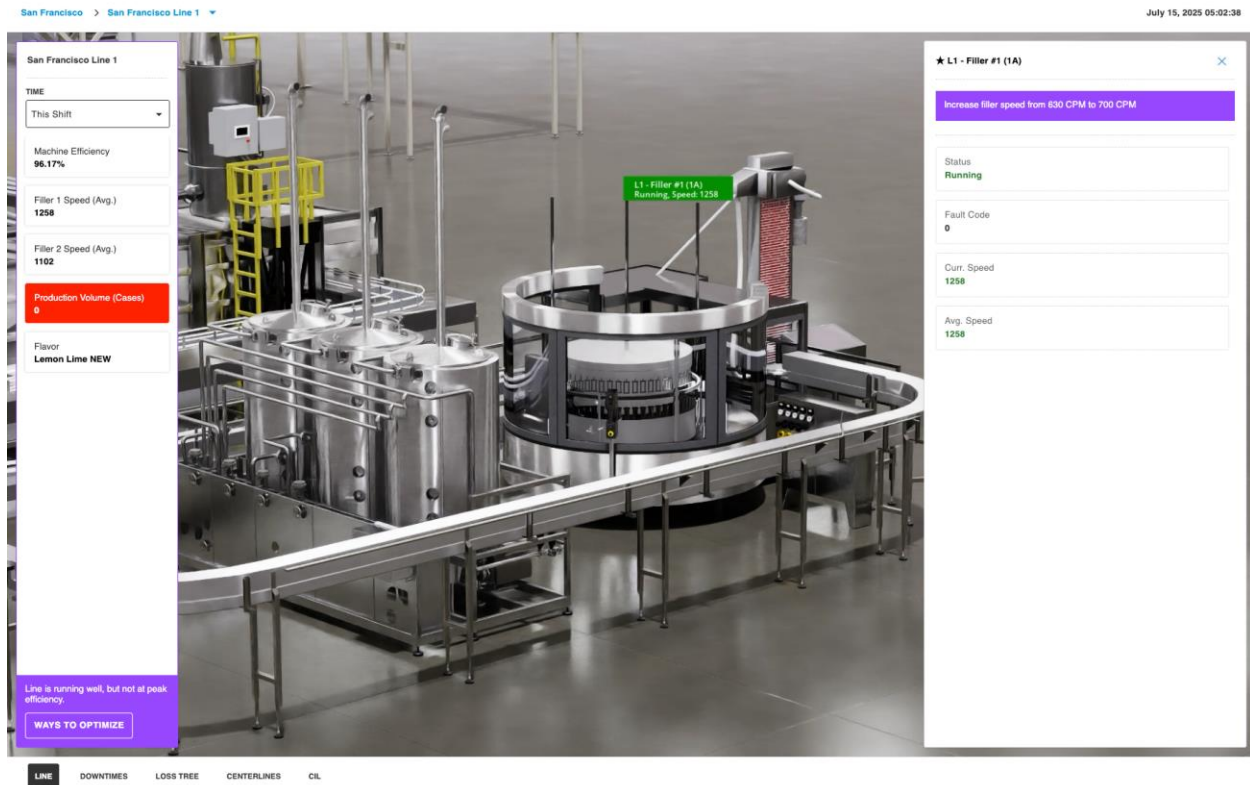
How the Scheduling Agent Works

The Scheduling Agent uses a multi-agent architecture consisting of:

- **Orchestrator Agent** – Coordinates tasks across specialized agents based on current process context
- **Throughput Agent** – Focuses on maximizing production rates and identifying bottlenecks
- **Changeover Optimization Agent**: Specifically minimizes setup/teardown costs and times
- **Product Mix & Demand Analysis Agent**: Analyzes incoming orders, forecasts demand patterns, and determines optimal batch sizes
- **Schedule Optimization Agent**: Creates the actual sequences and timing based on inputs from other agents

Each agent uses pre-validated machine learning (ML) tools to ensure that the results are highly accurate.

Built on Azure AI Foundry Agent Service, this agent delivers real-time production schedules in high product mix processes to shop floor teams.

Accessing the Scheduling Agent

The Scheduling Agent generates production schedules in real-time as conditions change, based on the current product, batch size, and other factors. Recommended production schedules are suggested based on optimizing for throughput and minimizing changeover time.   The agent is responsible for planning and executing the analytics strategy and communicating the results to the operator or engineer.

All recommendations are surfaced directly in the Sight Machine UI and also integrated into a 3D Digital twin, built with OpenUSD and NVIDIA Omniverse technologies and rendered in real time with NVIDIA A10 RTX GPUs on Azure.