AI & Robotics in Campus Dining

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Automation vs AI - What is the difference?

Automation is about DOING

- Perform tasks with minimal or no human intervention.
- Follows pre-programmed rules or processes to execute repetitive tasks consistently.
- Does not adapt to change without reprogramming.

AI is about THINKING & LEARNING

- Simulates human intelligence by learning, reasoning, and adapting.
- Analyzes data, recognizes patterns, and makes decisions based on that information.
- Can adjust to new information and improve performance and accuracy over time by "learning" from its interactions and data

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What is Robotics?

Robotics is the physical aspect of automation.

- Robots enable automation of physical tasks.
- Robots can range from simple single-task machines like automated coffee dispensers to complex multi-task machines like Blendid.
- When combined with AI, robots becomes "smarter."
- AI-equipped robots can analyze their environment, make decisions, and adapt to changes.

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The University Perspective: Motivation and Pain Points

Real World Examples in Commercial Kitchens

- Automated Frying, Grilling, Baking Stations
  - Cook Burgers, Deep Fry French Fries *(Miso Robotics)*
  - Bake Pizzas *(Pazzi Robotics, Nala Robotics, XRobotics)*
- Food Prep
  - Chop and Slice Ingredients *(Nymble)*
  - Roll Sushi and Make Dumplings *(Suzumo)*
- Smart Dispensing and Mixing
  - Prep Salads and Bowls *(Hyphen, Chowbotics)*
  - Blend Smoothies and Bubble Teas, Brew Coffee *(Blendid)*

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Real World Examples in Commercial Kitchens

- Delivery and Service
  - Table Delivery *(Bear Robotics, RobotLAB)*
  - Autonomous Food Delivery *(Starship, Avride)*
- Cleaning and Sanitizing
  - Floor and Surface Cleaning *(Whiz)*
  - UV Sterilization *(Ohmnilabs, Xenex)*
- Inventory and Stocking
  - Smart Inventory Management *(Simbe, Adapta Robotics)*
  - Automated Storage and Retrieval *(Sage Automation)*
- Full Automation
  - End-to-end automation *(Spyce, Shin Star Presents)*

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The University Perspective: Planning the Future

The Future of Kitchen AI

- Predictive Inventory Management
  - Demand Forecasting
  - Real-Time Stock Monitoring
- Smart Ordering and Menu Recommendations
  - Personalized Menu Suggestions
  - Dynamic Menu Adjustments
- Automated Quality Control
  - Food Quality Monitoring
  - Temperature and Cooking Time Monitoring
- Enhanced Customer Service and Order Processing
  - Voice-Activated Ordering
  - Chatbots for Customer Support
- Operational Efficiency Optimization
  - Scheduling and Task Management
  - Workflow Optimization

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The Future of Kitchen AI

- Predictive Maintenance of Kitchen Equipment
  - Equipment Monitoring
  - Usage Analytics
- Food Safety and Hygiene Compliance
  - AI-Enhanced Food Safety Monitoring
  - Camera-Based Hygiene Checks
- AI in Automated Cooking Equipment
  - Automated Recipe Execution
  - Machine Learning-Enhanced Flavor Profiles
- Customer Feedback Analysis
  - Sentiment Analysis from Reviews
  - Dynamic Menu Adjustments Based on Feedback
- Marketing and Pricing Optimization
  - Dynamic Pricing Algorithms
  - Targeted Promotions

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Questions?

Thank you!

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