

Smart Staffing Playbook – Managing Staff in a Stadium Concession Stand

ID# 2019-4983



Penn State's Beaver Stadium

Technology Summary

The research team developed a staffing control model using Markov Decision Process (MDP) to improve worker schedules that optimize efficiency of stadium concession stands. The model captures the interplays between customer arrival rate, service rate, and kitchen throughput. It helps planners to reassign workers to various tasks during a stadium event according to the current queue length and inventory level. The objective is to maximize both the revenue of a concession stand and customer service given the number of available workers, and the demand profile experienced by the concession stand.

Application & Market Utility

Long lines for concessions at large stadiums and event venues lead to customer dissatisfaction and reduced revenues. This technology optimizes worker assignment to increase both stand revenue and customer ratings. This tool was motivated by, developed for, and tested at Beaver Stadium concession stands during Penn State football games.

Next Steps

Research team seeks collaboration for future development and licensing.

TECHNOLOGY READINESS LEVEL

1-3

Seeking

Investment | Licensing | Research

Keywords

- Service Staffing
- Food Service System
- Hospitality Industry
- Stadium Concessions

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