PROBLEM

- The University of Michigan Medical School offers medical residency programs across many disciplines.
- Block scheduling assigns residents to services throughout the year to meet the needs of the residents (education, preferences, etc.), services (coverage), and programs (fairness, proficiency, burn-out, etc.).
- Traditional manual construction by program leadership is time-consuming and often fails to meet stakeholder needs and preferences.

MODEL

Mixed Integer Programming

Minimize:
- Resident requests denied
- Administrative preferences denied
- Seasonal conflicts
- Burnout sequences
- Ambulatory credit variability

Subject to:
- Basic Assignment
- Rotation Duration
- Service Coverage
- Resident Education
- Prohibitions
- Pre-assignments
- Service Spacing
- Service Sequencing
- Resident Pairings

FEATURES & OUTCOMES

Generate Schedules Quickly

Iterative Construction Process

Peds | MP | IM | SG

| Schedule Generation |

- 1 min
- 5 – 120 min
- 1 min

Use

- 4 years
- 2 years
- 2 years
- 4 years

Improve Schedule Quality

- Resident Requests
- Patient Care Coverage

Enabled greater specificity of resident and service needs

Improved satisfaction regarding:
- Vacation requests & elective/research offerings
- Fellowship interview & graduation conflicts
- Pacing and challenging rotation sequences

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