Team Amalgam

Moolloy v0.3

Joseph Hong, Chris Kleynhans, Ming-Ho Yee, Atulan Zaman

Moolloy

Exact, discrete, multi-objective optimization

Moolloy

Exact, discrete, multi-objective optimization

- No approximations

Moolloy

Exact, ***discrete***, multi-objective optimization

- As opposed to **continuous** variables
- Examples: types of materials, fixed sizes

Moolloy

Exact, discrete, ***multi-objective optimization***

- As opposed to **single-objective** optimization
- Multiple objectives may conflict
  - Example: Cost vs Performance

Project and Customer

Project: Optimize Moolloy

Customer: Professor Derek Rayside

Significance

Professor Bryan Tolson, Civil Engineering

- Pipe network problem
- River problem
- Landfill problem

Significance

- NASA's Decadel Survey
  - Ten-year satellite launch plan
  - Find a schedule that maximizes scientific value

Plan

- Prepare test cases and benchmarks
  - Correctness
  - Improved performance

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Plan

- Prepare test cases and benchmarks
  - Correctness
  - Improved performance
- Refactor existing Moolloy code over winter term
- Choose an idea
  - Implement it
  - Run through benchmarks

Ideas

- Parallel decomposition

Ideas

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- Input space reduction
  - Maybe some possibilities can be eliminated from the search?

Gotchas

Not been done before

- Many different ideas to try out

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Not been done before

- Many different ideas to try out

Not done by us

- Finding problems that work with well Moolloy
  - "Landfill problem" involves differential equations, each takes 2 min to solve

Environment

A subset of the Joel Test

- **Source control:** ECE-hosted SVN and Git
- **Bug database/tracking:** Trello
- **Communication:** email, Google Docs, Skype

Summary

Exact, discrete, multi-objective optimization

- **Project:** Make it faster
- **Customer:** Professor Derek Rayside
- **Significance:** civil engineering, aerospace