UDESC
UNIVERSIDADE
DO ESTADO DE
SANTA CATARINA

Title

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Lorem 1

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Introduction

Why Beamer?

1. LaTeX is great!
2. Beamer is easy to use!
3. Why not?

Why Custom Themes?

- The default Beamer themes are outdated and visually displeasing
- There aren't many Beamer themes readily available online
- Making custom Beamer themes is easy!

Lorem Ipsum

Lorem 1

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Lorem 2

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Lorem 3

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[1] Rainer E Burkard et al. "The Quadratic Assignment Problem". Em: *Handbook of Combinatorial Optimization*. Springer, 1998.

[2] Sartaj Sahni e Teofilo Gonzalez. "P-complete approximation problems". Em: *Journal of the ACM (JACM)* 23.3 (1976).

[3] Nathan W Brixius e Kurt M Anstreicher. "The Steinberg Wiring Problem". Em: *SIAM* (2001).

Lorem 4

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Lorem 5

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$$p_{ij}^{k} = \begin{cases} \dfrac{[\tau_{ij}]^{\alpha}[\eta_{ij}]^{\beta}}{\sum\limits_{l \in \text{free}_k} [\tau_{il}]^{\alpha}[\eta_{il}]^{\beta}} & \text{if } j \in \text{free}_k \\ 0 & \text{otherwise} \end{cases}$$

- α and β text text text text
- free_k text text text text k

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$$D = \begin{bmatrix} 0 & 5 & 2 & 4 \\ 5 & 0 & 1 & 3 \\ 2 & 1 & 0 & 1 \\ 4 & 3 & 1 & 0 \end{bmatrix} \Rightarrow P_d = \begin{bmatrix} 11 \\ 9 \\ 4 \\ 8 \end{bmatrix} \qquad F = \begin{bmatrix} 0 & 50 & 60 & 94 \\ 50 & 0 & 22 & 50 \\ 60 & 22 & 0 & 44 \\ 94 & 50 & 44 & 0 \end{bmatrix} \Rightarrow P_f = \begin{bmatrix} 204 \\ 122 \\ 126 \\ 188 \end{bmatrix}$$

Lorem 6

$$H = P_d * P'_f = \begin{bmatrix} 2244 & 1342 & 1386 & 2068 \\ 1836 & 1098 & 1134 & 1692 \\ 816 & 488 & 504 & 752 \\ 1632 & 976 & 1008 & 1504 \end{bmatrix}$$

$$\eta_{ij} = 1/H_{ji}$$

Hybrid Max-Min Ant System

Algorithm

```
m ← number of ants
global-best ← ∞
pheromone-matrix ← InitializePheromoneMatrix()
repeat
    iteration-best ← ∞
    for k ← 0 to m do
        ant ← ConstructSolution()
        ant ← LocalSearch(ant)
        if Cost(ant) < Cost(iteration-best) then
            iteration-best ← ant
        end
    end
    if Cost(iteration-best) < Cost(global-best) then
        global-best ← iteration-best
        UpdateMaxMinValues()
    end
    best-ant ← SelectBest(global-best, iteration-best)
    UpdatePheromoneMatrix(best-ant)
until stopping criteria is not met
return global-best
```

Conclusions

Closing Thoughts

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Obrigado!

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