

Title

Jackson Antonio do Prado Lima (jacksonpradolima at gmail dot com)
Augusto Lopez Dantas (aldantas at protonmail dot com)

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- ❖ The default Beamer themes are outdated and visually displeasing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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¹burkard:98.

²sahni:76.

³brixius:01.

Lorem 4

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Lorem 5

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

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

text text text text

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

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

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

Conclusions

Closing Thoughts

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- ❖ Future Works:

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Thank you!

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