

# One-station-ahead forecasting of dwell time, arrival delay and passenger flows on trains equipped with automatic passenger counting (APC) device

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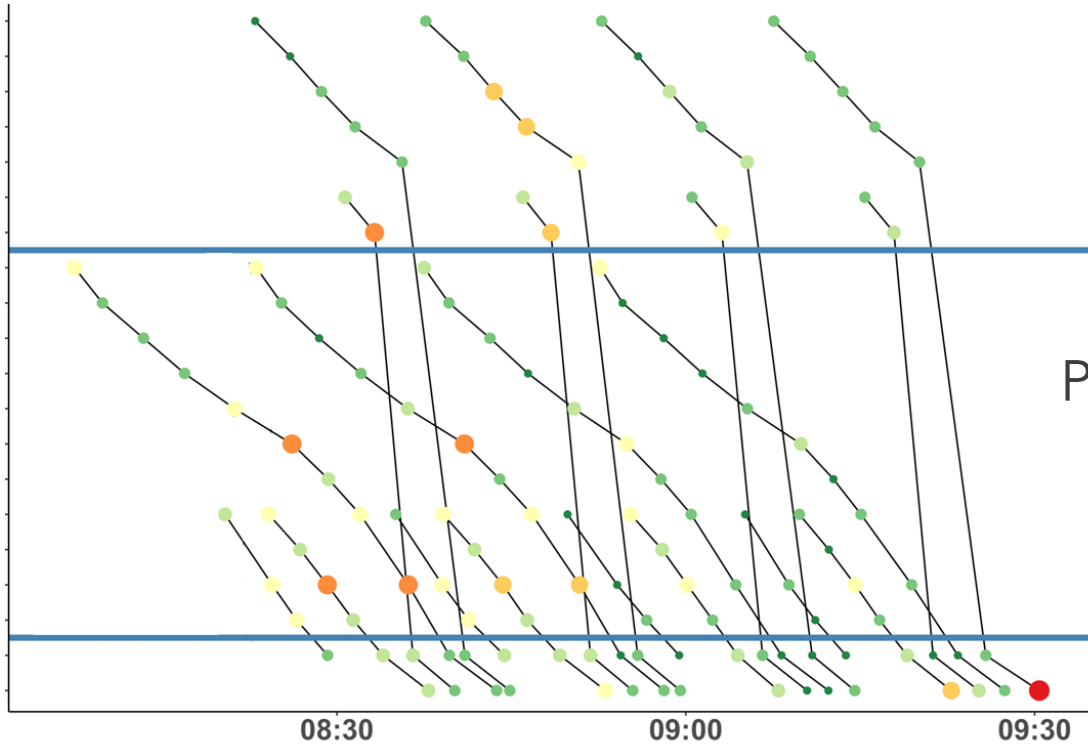
1. SNCF Voyageurs – Transilien, 10 rue Camille Moke, 93220, Saint- Denis, France

2. Université Paris-Saclay, CNRS, Laboratoire de mathématiques d'Orsay, 91405, Orsay, France

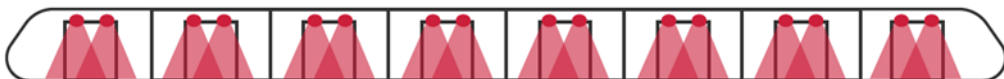
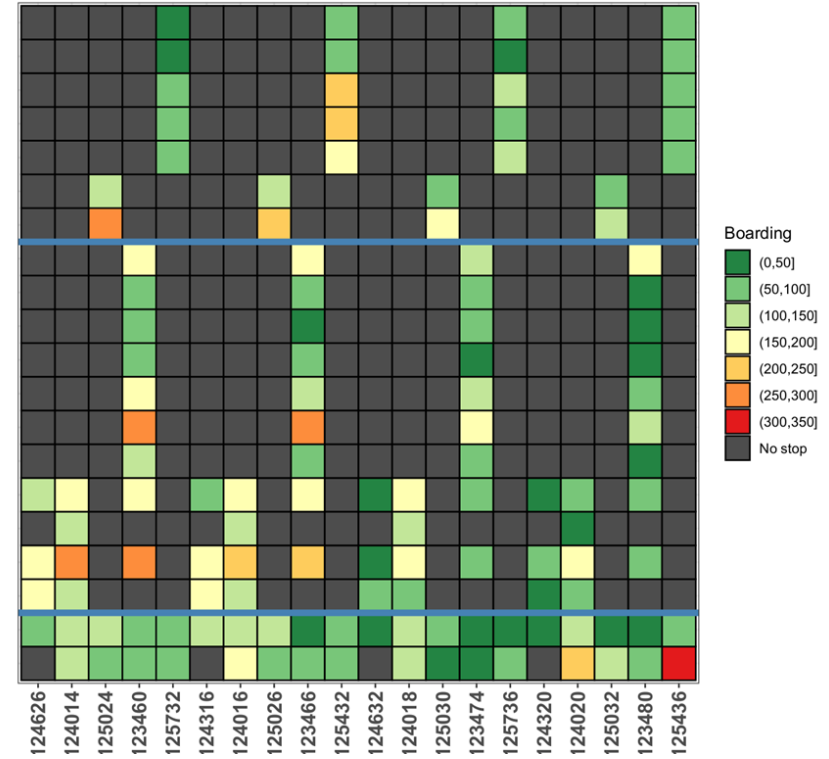


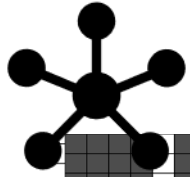


# From space-time to space-train graph

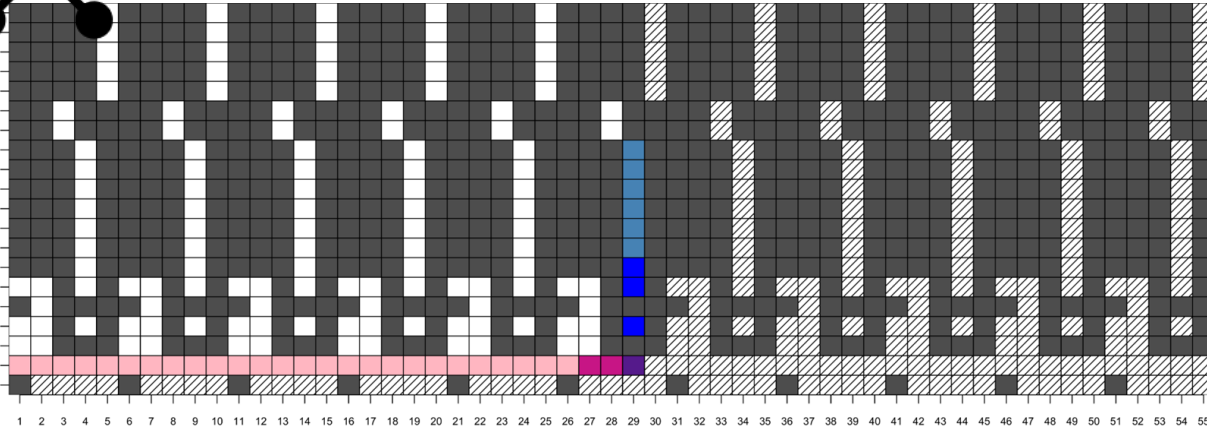


Projection

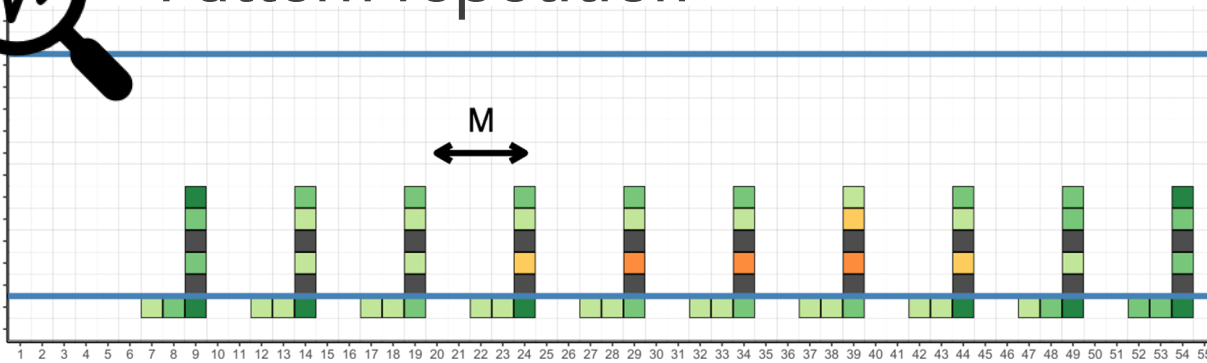




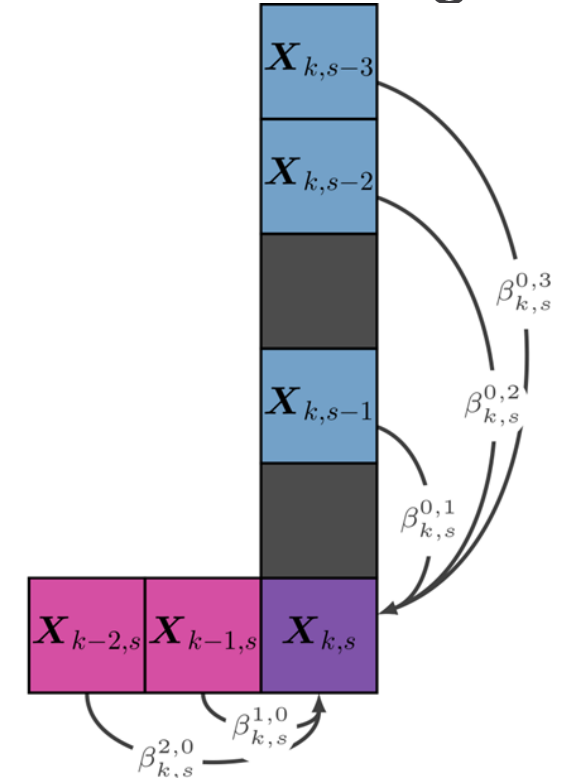
## L-shape neighbourhoods



## Pattern repetition



## Bi-auto-regressive modeling



# Main references

1. Bapaume et al. 2021
2. Corman & Kecman 2018
3. Jenelius 2019
4. Li et al. 2016

- i. **Assessing one framework** on 5 different variables while only dwell time in [4], arrival delay in [2], load in [1], [3]
- ii. **Patterns** enable to balance between frugality [4] and complexity [2]
- iii. **L-shape** is neighbourhood along station (blue) and train rides (pink) in [1, 2, 3] while [4] use **I-shape** with neighbourhood only along train rides

Thank you for your attention  
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