

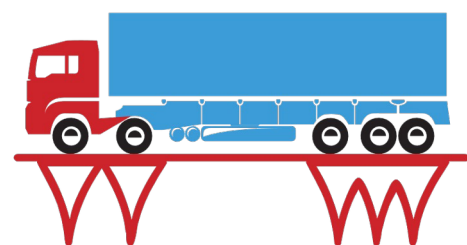


Designing HS-WIM in Belgium with Local Regression towards direct weight enforcement

Loïc Warscotte



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ISWIM

6 - 10 November 2023
Brisbane, Australia



FORUM

Outline



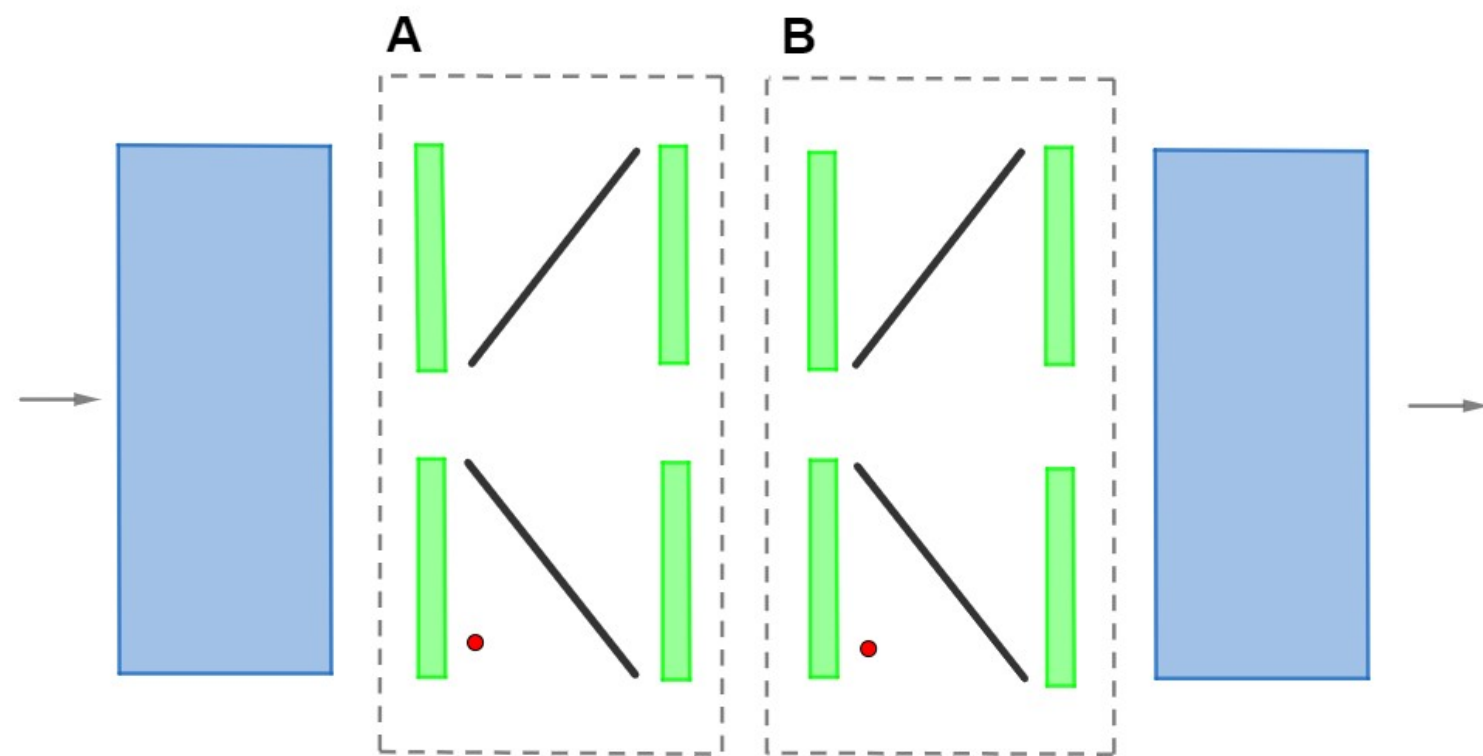
1. Data collecting
2. Statistics and model
3. Results
4. Further research

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Data collection campaign

WIM site: Class II, good (COST323)

(R2) Full reproducibility (GW)
LS-WIM → Reference weight



	Semi-trailers	Vans
Number	404	188
Valid ones	180	185
δ (%)	5	10
Π_{δ} (%)	99.99	99.98

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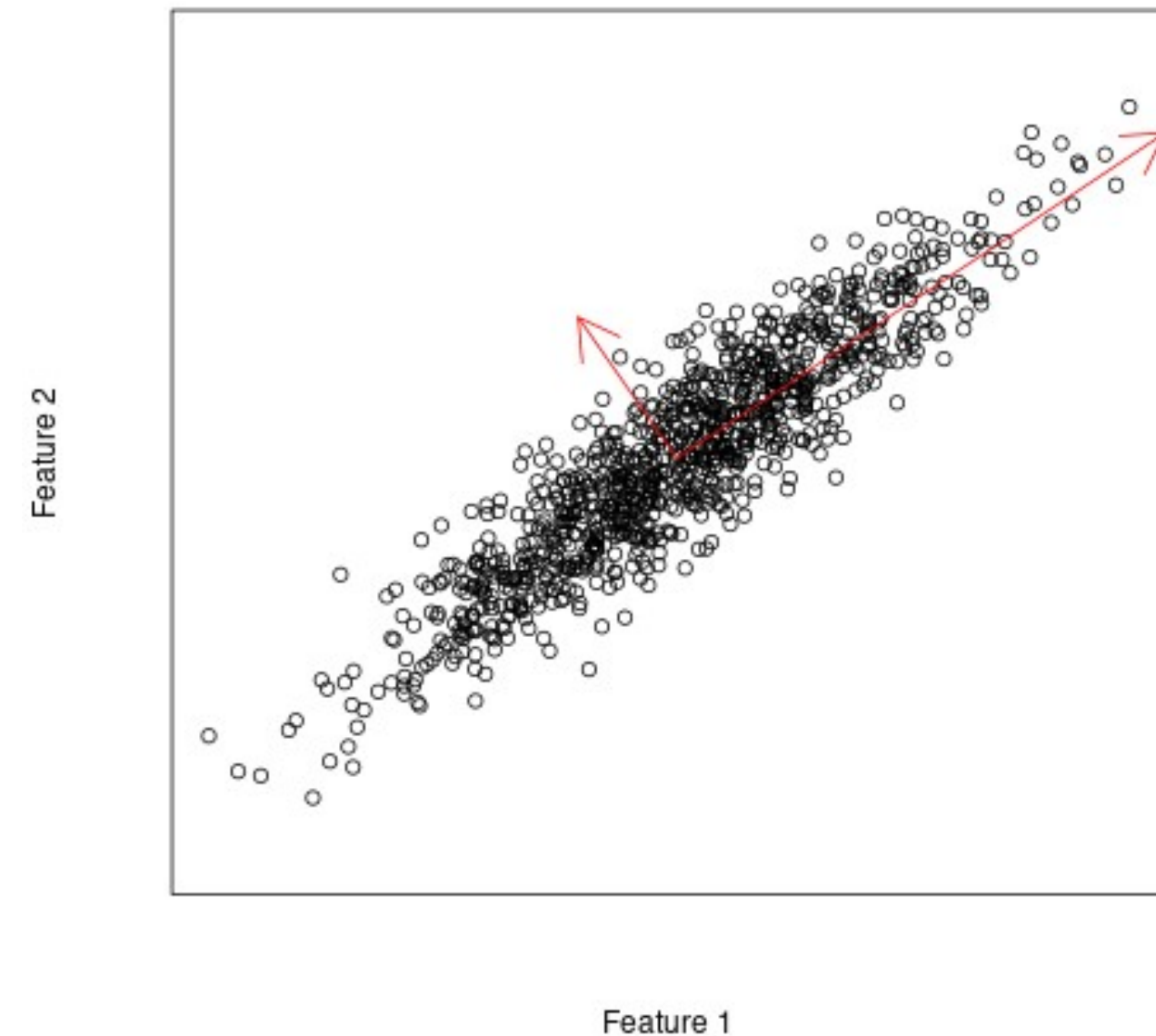
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Best representation of vehicles



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- 10 (4) position features for semi-trailers (vans)
- 20 (8) weight features for semi-trailers (vans)
- Speed of vehicle



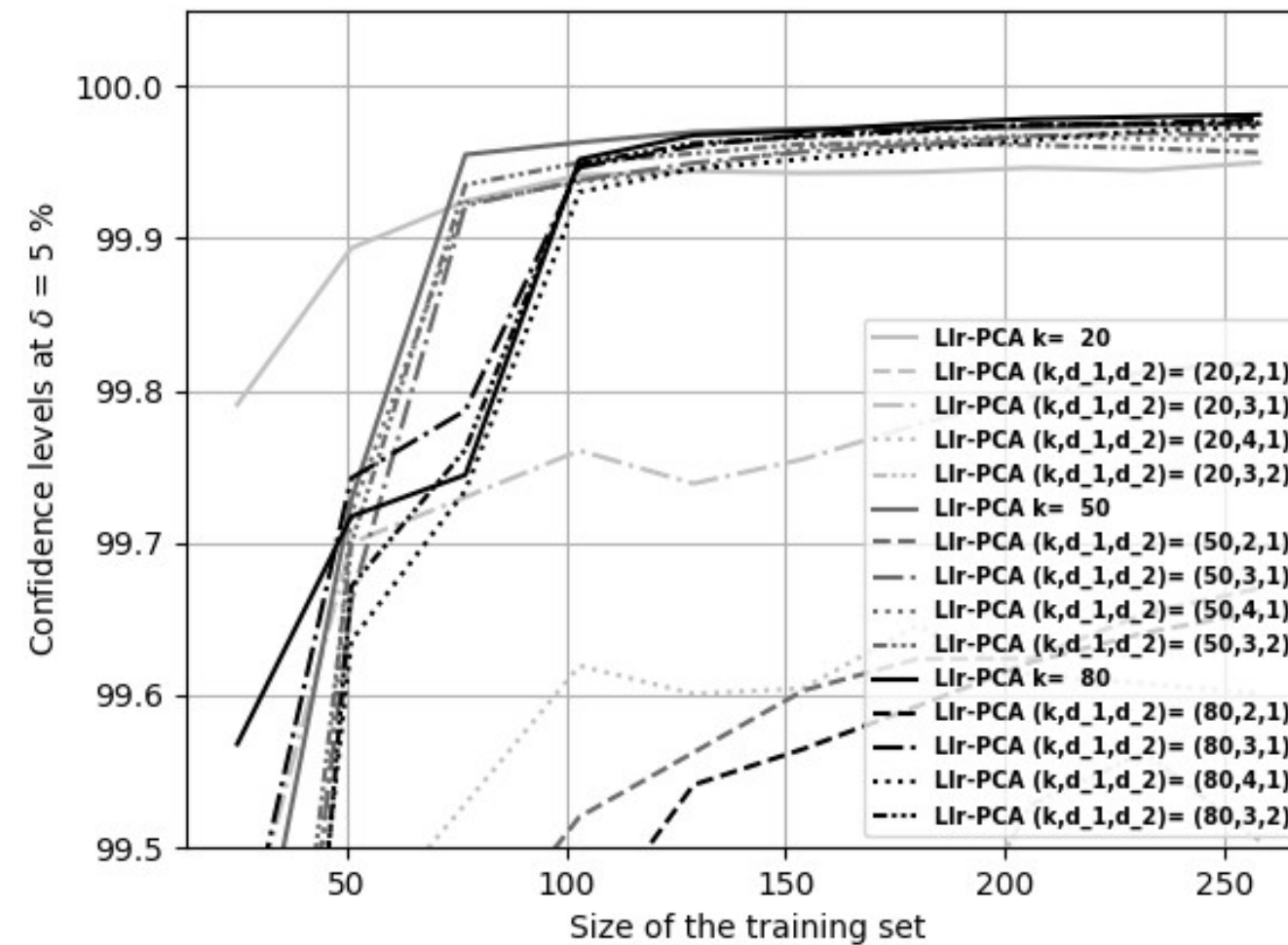
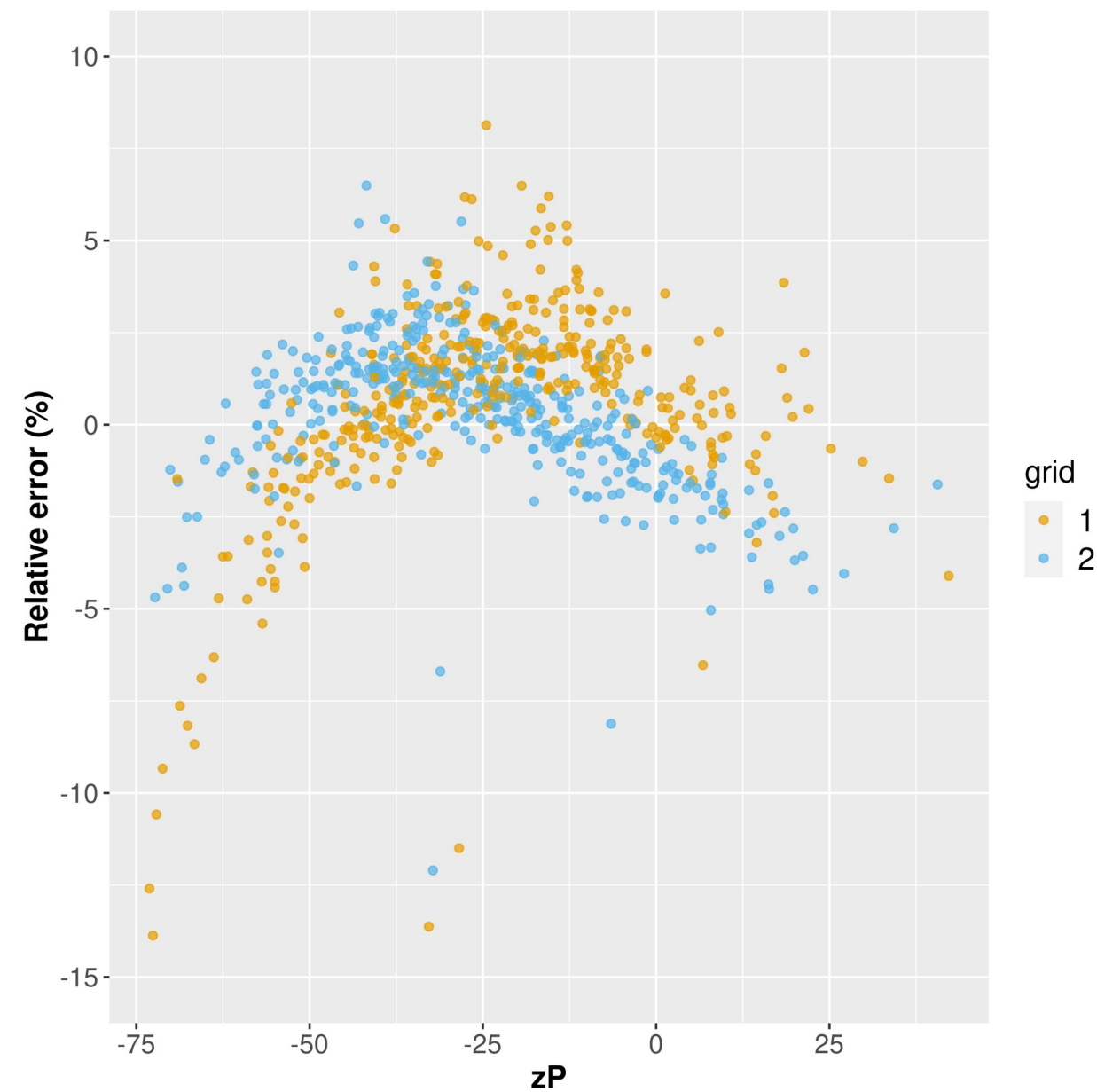
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Non-parametric Learning (semi-trailers)



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Practical aspects



- 1. Transform the initial features into compressed features
- 2. Compute the similarity between the vehicle and each vehicle in the database
- 3. Solve the linear system (3x3)
- 4. (Checking the determinant)

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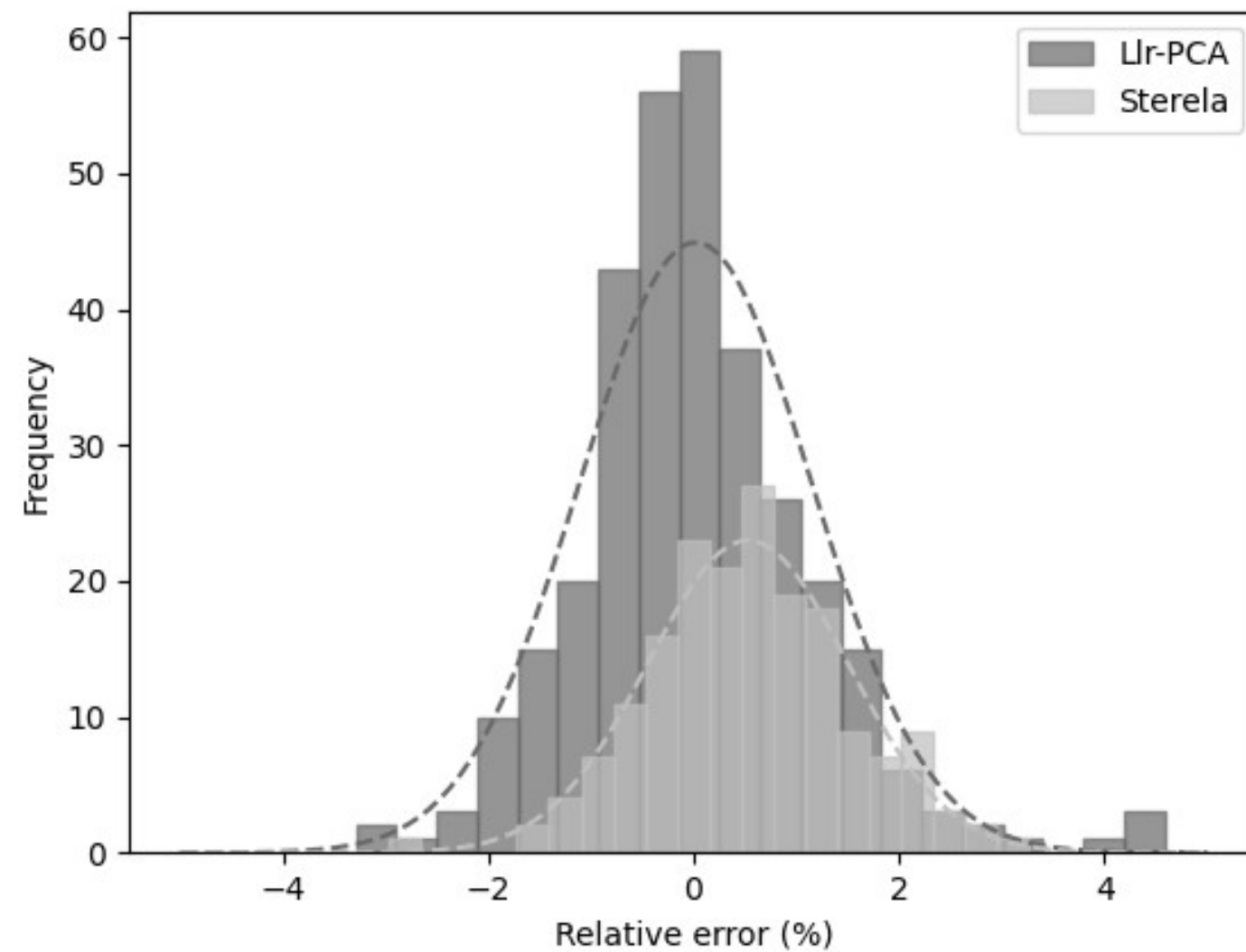
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Accuracy of the modeling

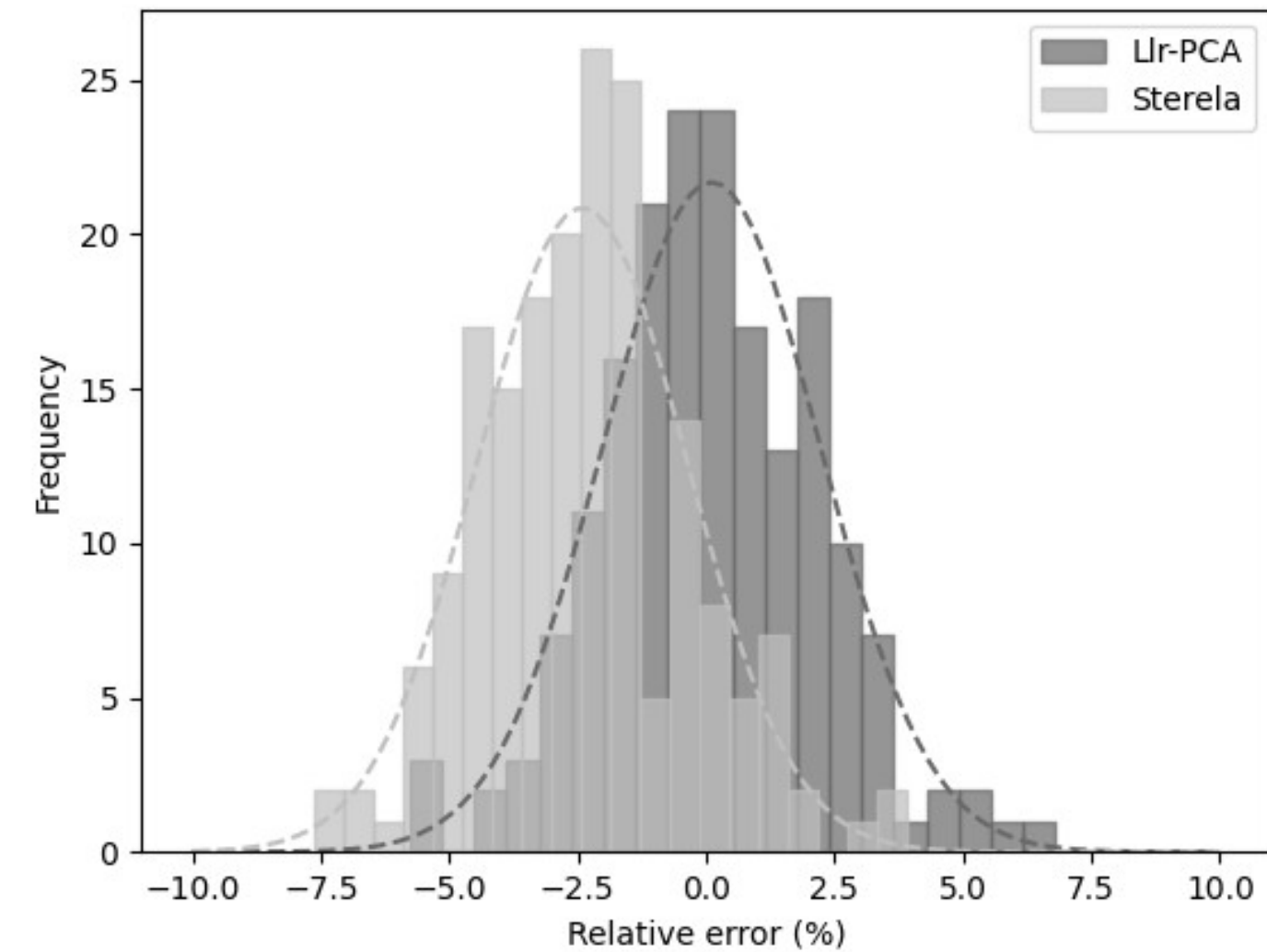


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Semi-trailers



Vans



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Current research



1. Better compression of the features
2. Applications to other types
3. Bigger number of available features
4. Complete codes of validation

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Conclusion



1. More than 80% of the semi-trailers are weighed with a relative error $< 5\%$
2. All vans with relative error $< 7\%$
3. Ready-to-use program
4. Run fast on usual micro-controllers

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