

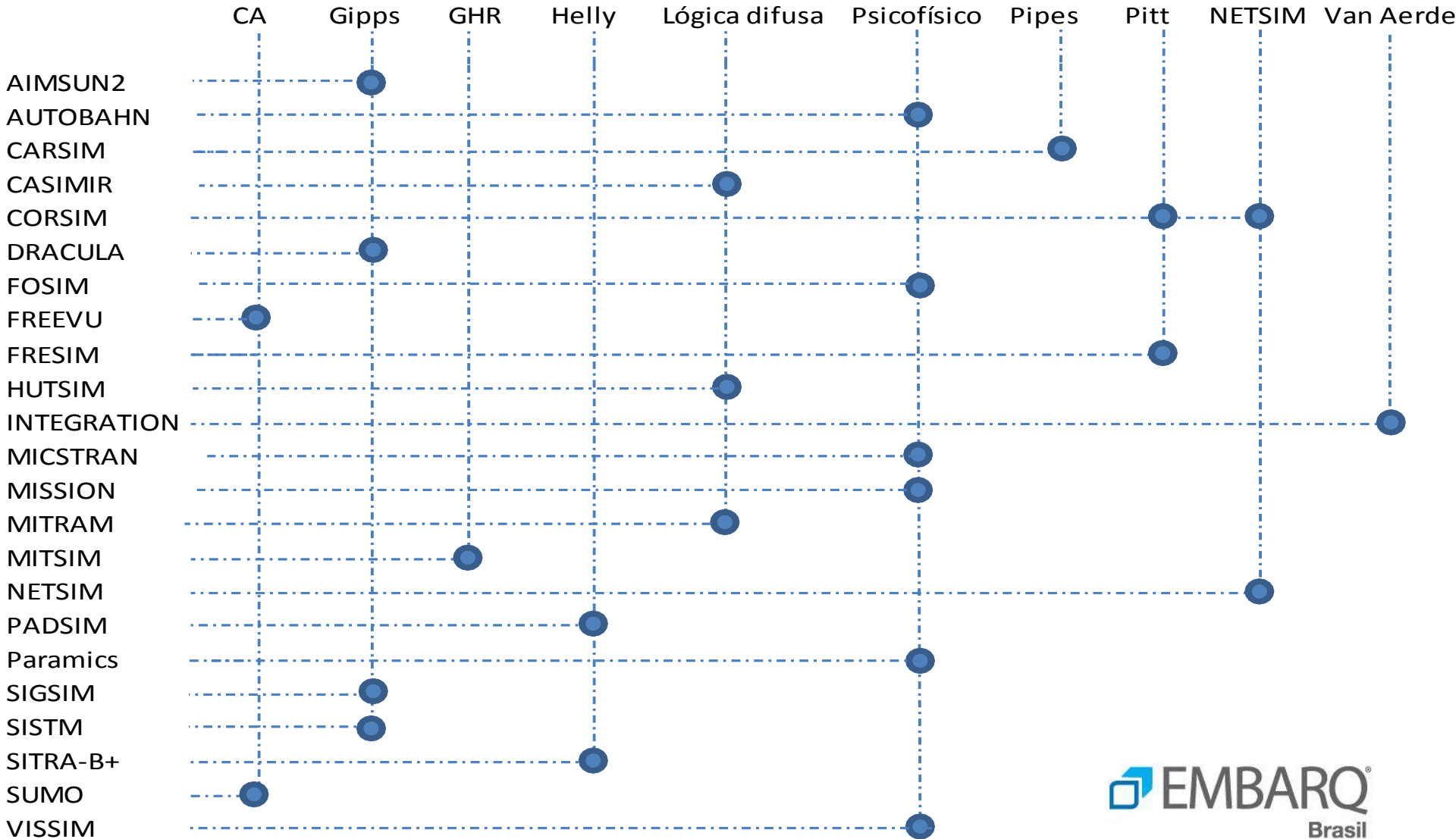
# LT1: Development, calibration and validation of bus-following model to support analyses and evaluation of alternative BRT strategies under different scenarios

Luis Antonio Lindau

Paula Manoela dos Santos

Milestones	OUTPUTS
M1	End of car-following literature review
M2	Report describing potential of existing models to represent bus behavior
M3	Specification requirements for data collection equipment
M4	Plan for field data collection
M5	Data collection
M6	Data analyzes
M7	Development of proposed bus-following model
M8	Final report

# Commercial softwares vs. Car-following models



# Main findings

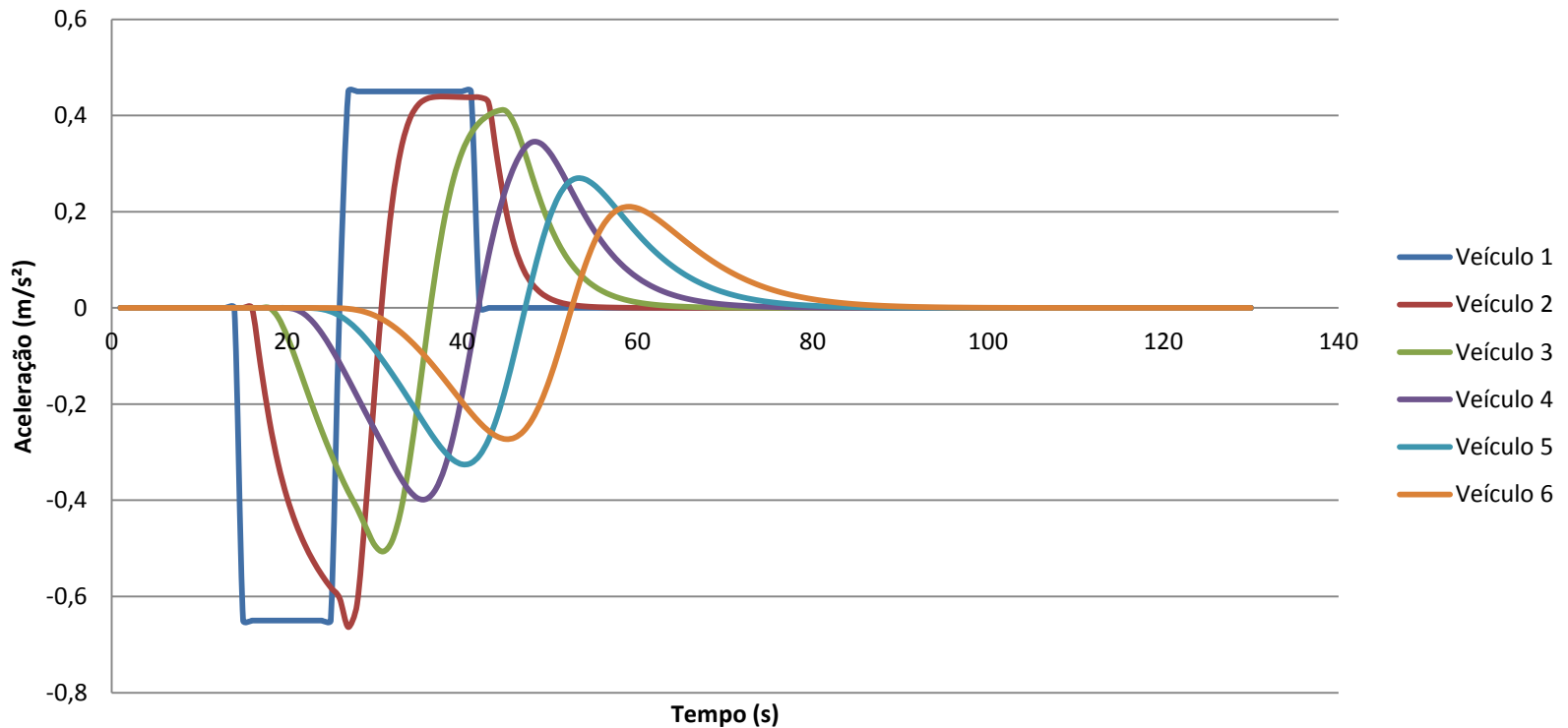
Models are of three types:

- Psychophysical (eg. Wiedemann – VISSIM)
- Stimulus-response (eg. GHR)
- Safe following distance (eg. Gipps)

Model	Number of parameters	Calibration challenge
Gipps	Low	Low
GHR	Low	Medium
VISSIM	High	High

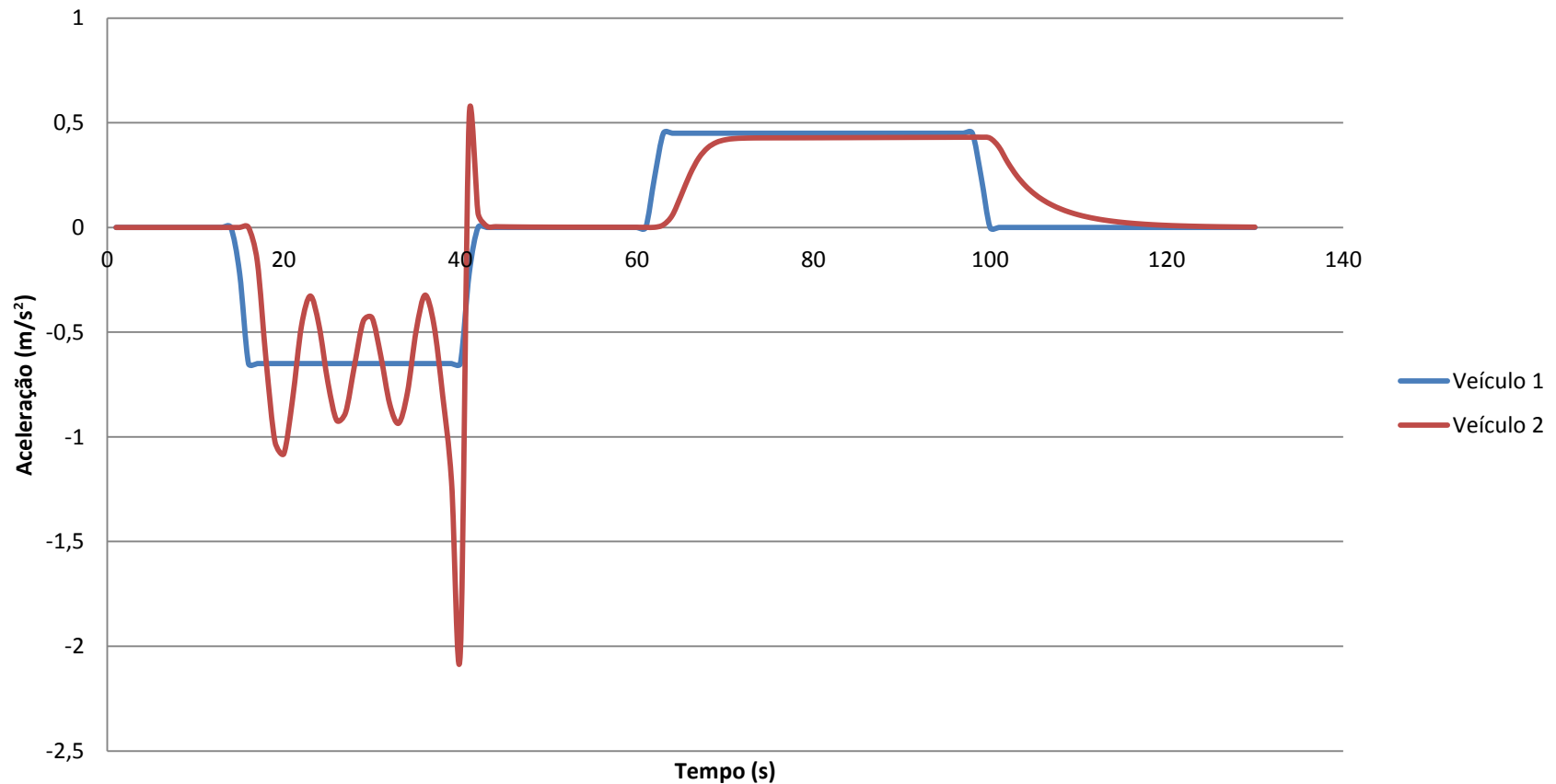
# Comparing: GHR and Gipps

Both are fine for decelerating and resuming acceleration (without stopping)...



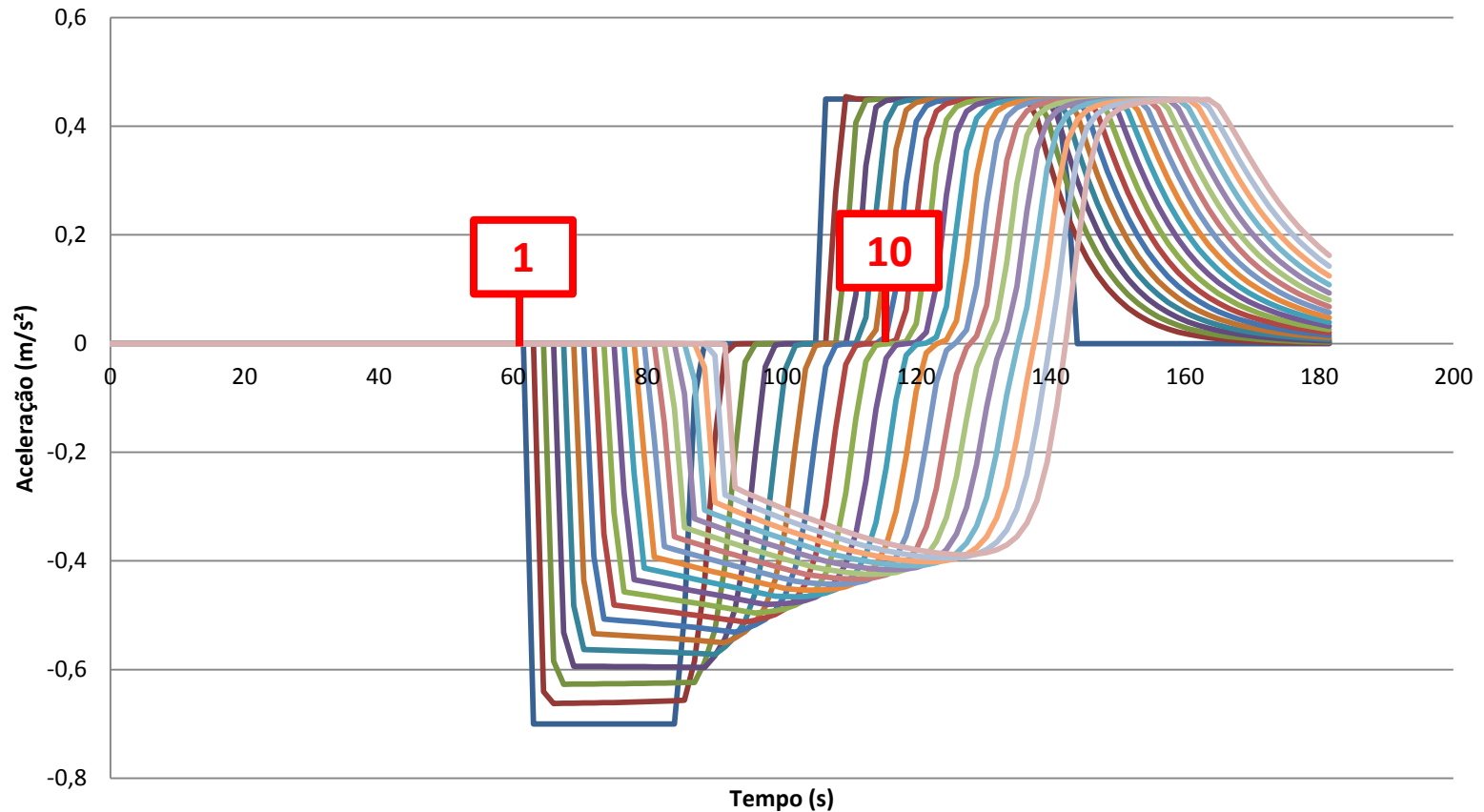
# Comparing: GHR and Gipps

... but GHR revealed unstable for typical bus stopping maneuvers.



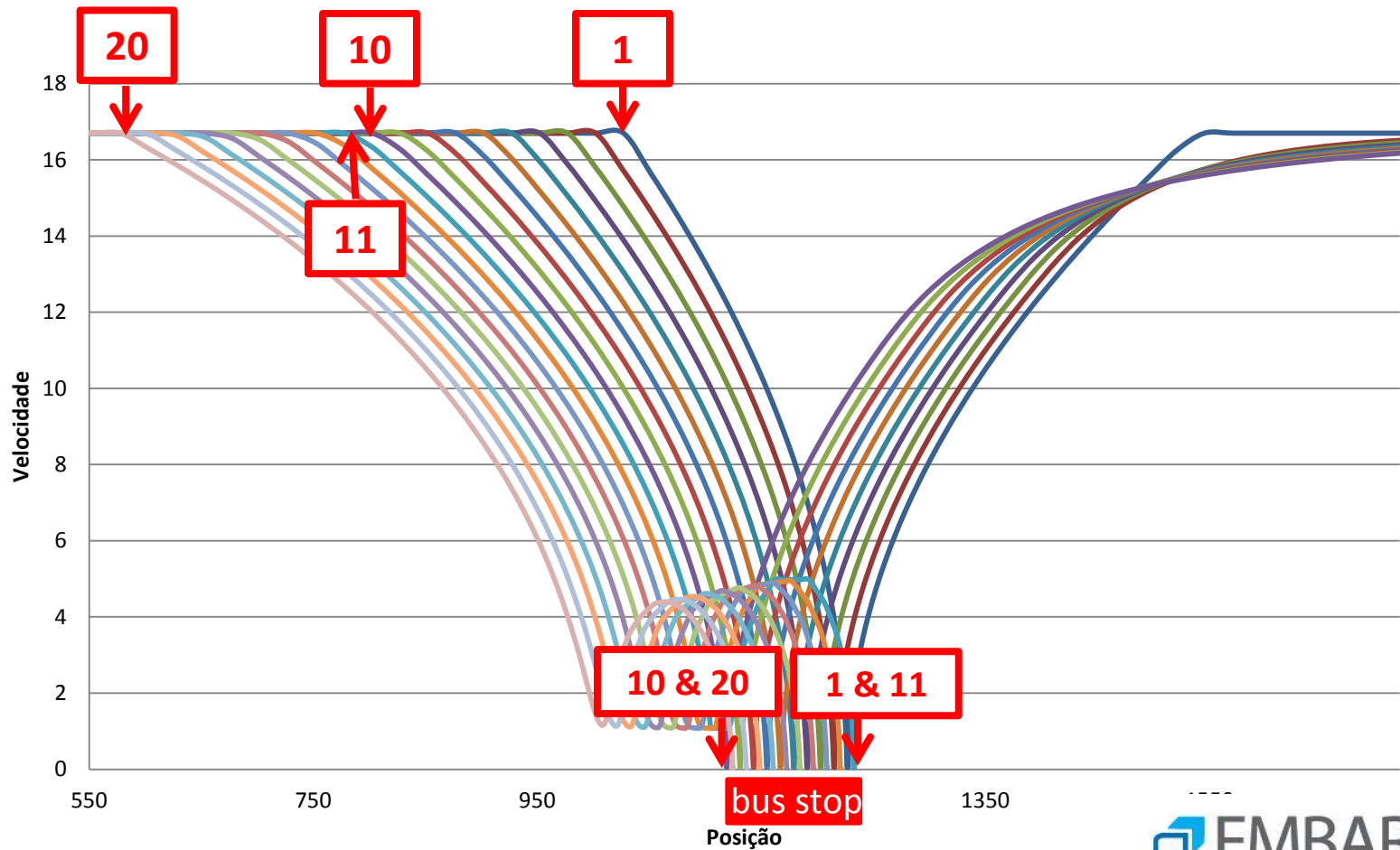
# Comparing: GHR and Gipps

Gipps is fine for long bus convoys and...



# Comparing: GHR and Gipps

... represents well the operation of successive long bus convoys.





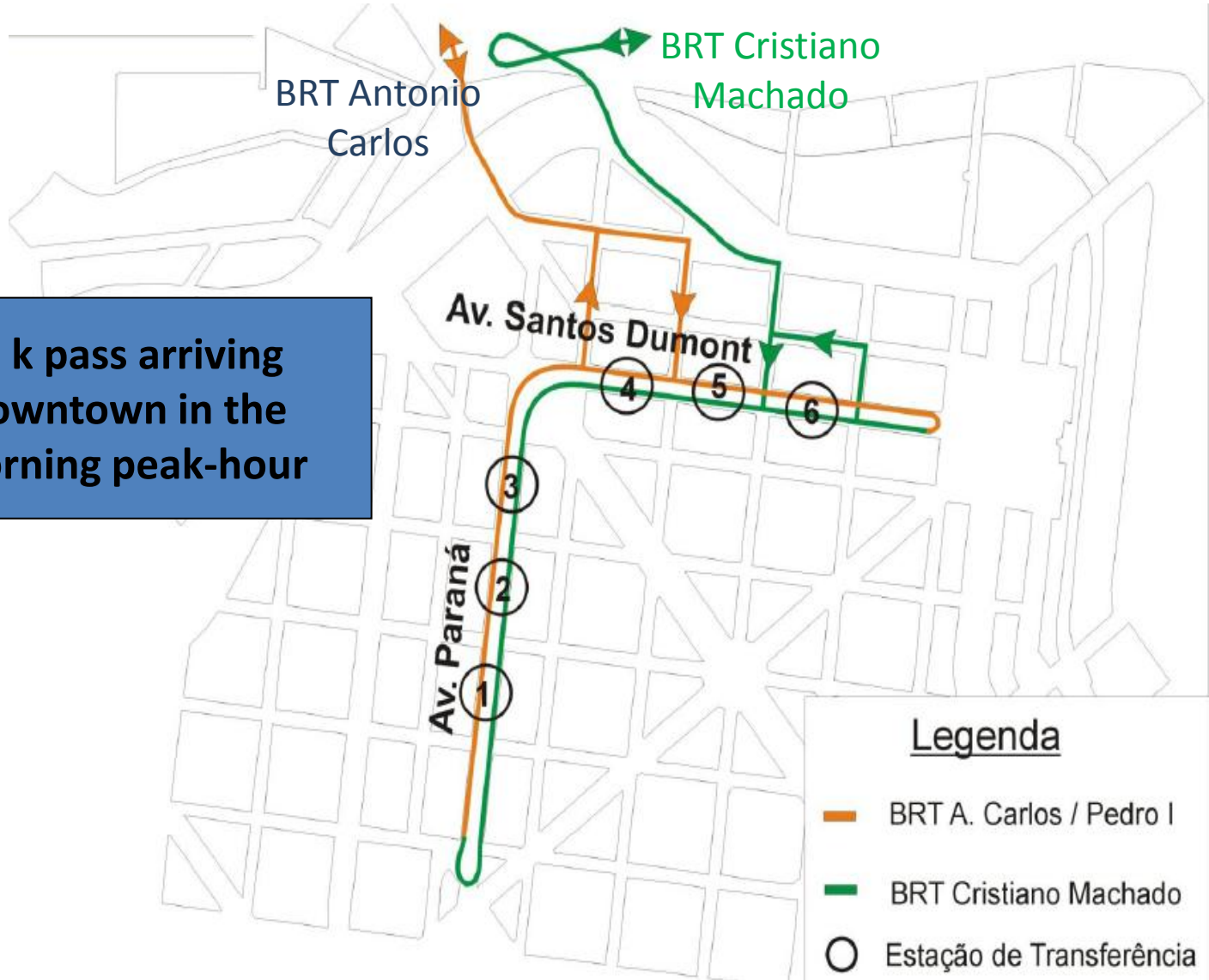
What is next: calibration challenge (manual vs. automatic)



**Is there a way of obtaining detailed position from image recognition of films taken from different locations and angles?**

# Belo Horizonte: Downtown merging of BRT corridors

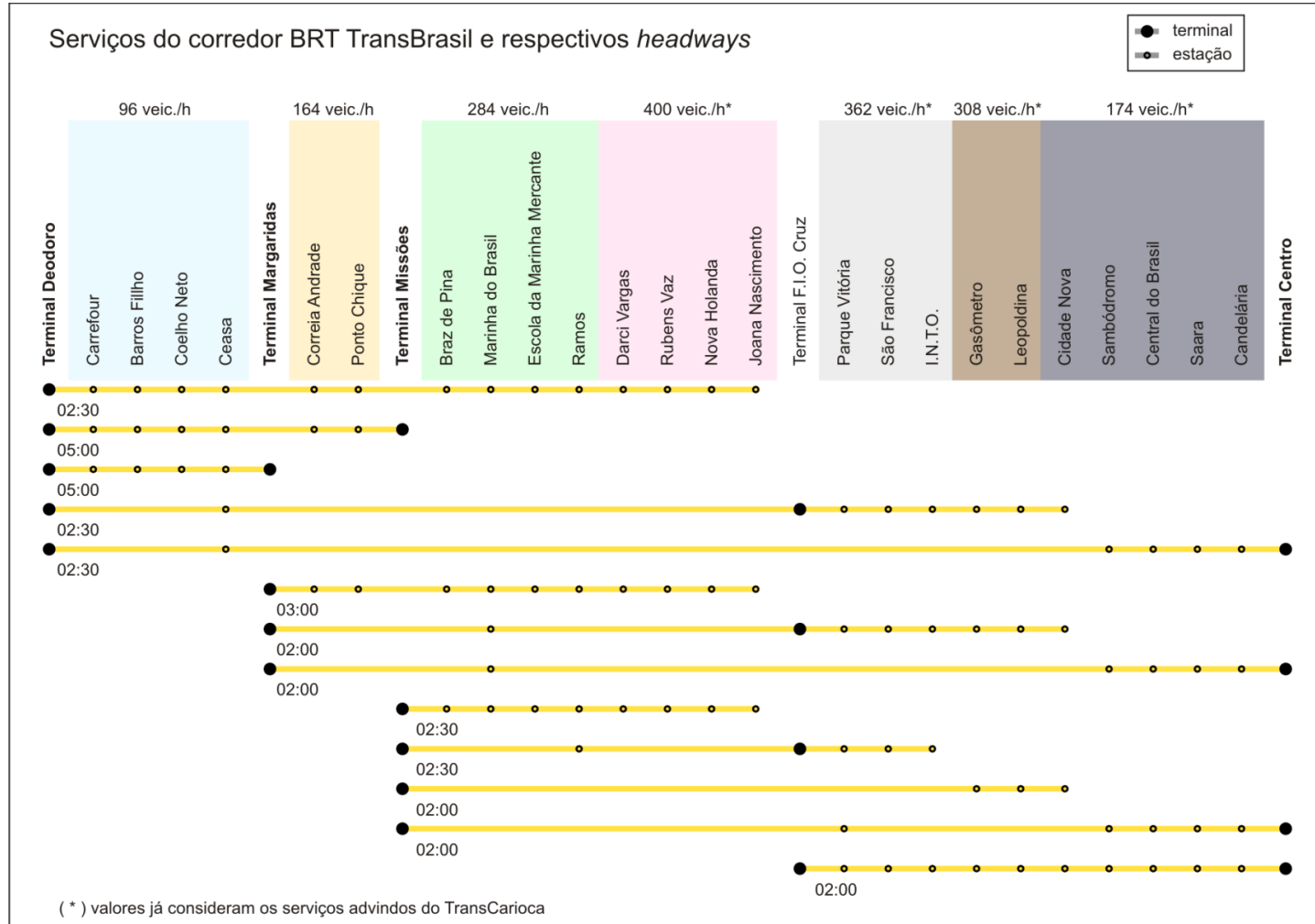
17 k pass arriving downtown in the morning peak-hour



# Rio de Janeiro: up to 60k pass/h/direction

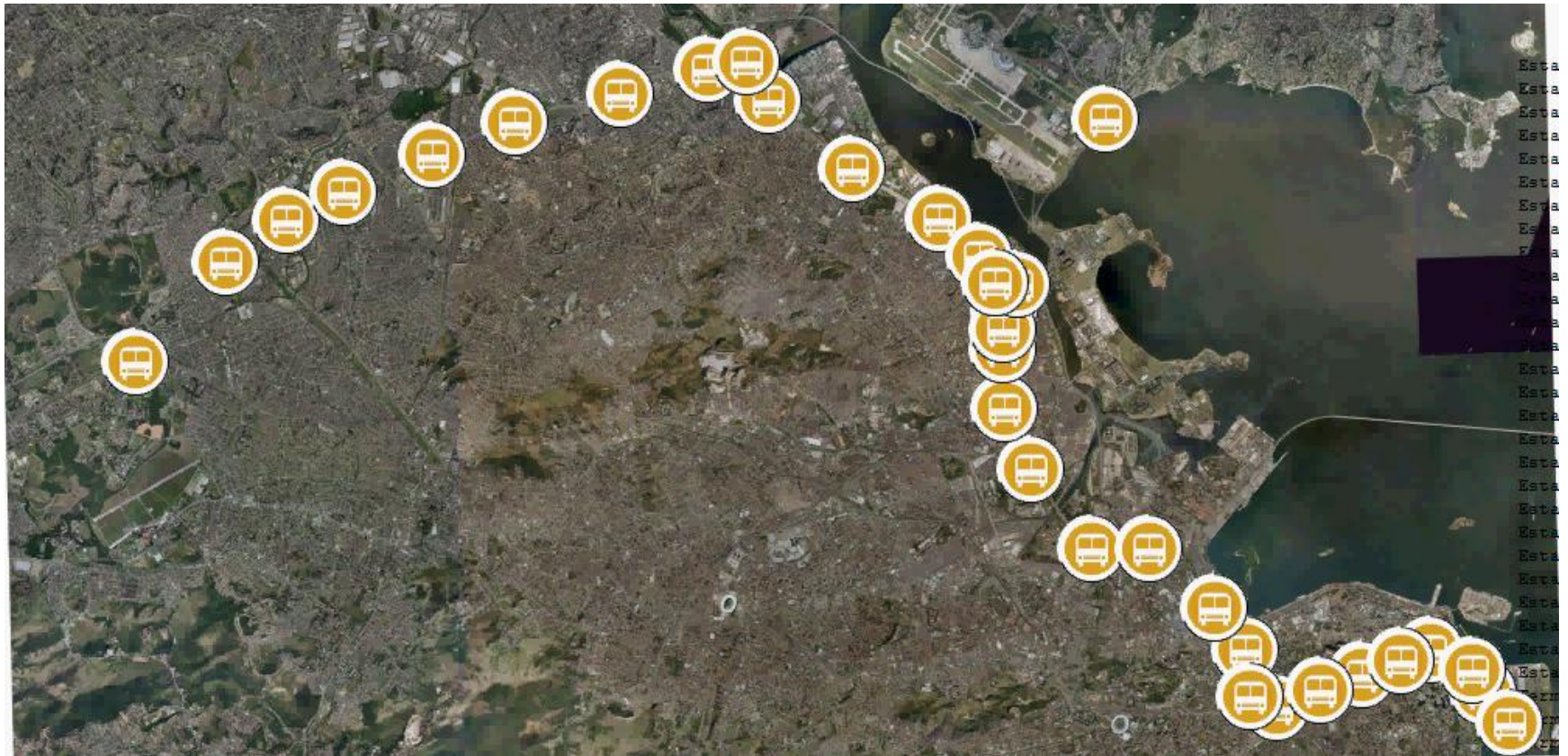


# TransBrasil + TransCarioca = 19 BRT routes



**Work in progress: route optimization (PUC Chile) and performance simulation (EMBARQ Brasil)**

# Performance simulation: EMBARQ BRT Simulator



# Conferences and submitted publications

- PEREIRA, B. M. ; LINDAU, L.A. ; CASTILHO, R. A. A importancia de simular sistemas Bus Rapid Transit. In: XVI Congreso Latinoamericano de Transporte Publico y Urbano, 2010, Cidade do Mexico. Anais do XVI CLATPU. Buenos Aires: ALAPTU, 2010. v. 1. p. 1-11.
- LINDAU, L.A. ; PEREIRA, B. M. ; CASTILHO, R. A. ; DIÓGENES, M. C. ; HERRERA, J. C. . Impact of design elements on the capacity and speed of Bus Rapid Transit (BRT): the case of a single lane per direction corridor. In: Thredbo 12 Conference, 2011, Durban. Workshop 2 BUS RAPID TRANSIT. Sydney : Thredbo Conference, 2011. v. 1. p. 1-12. (Submitted to **Research in Transportation Economics**)
- LINDAU, L.A. ; PEREIRA, B. M. ; CASTILHO, R. A. ; DIÓGENES, M. C. Impacto de elementos de projeto no desempenho operacional de sistemas BRT de faixa única sem ultrapassagem. XXV ANPET, 2011, Belo Horizonte. Panorama Nacional da Pesquisa em Transportes 2011. (Submitted to **Transportes**)

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