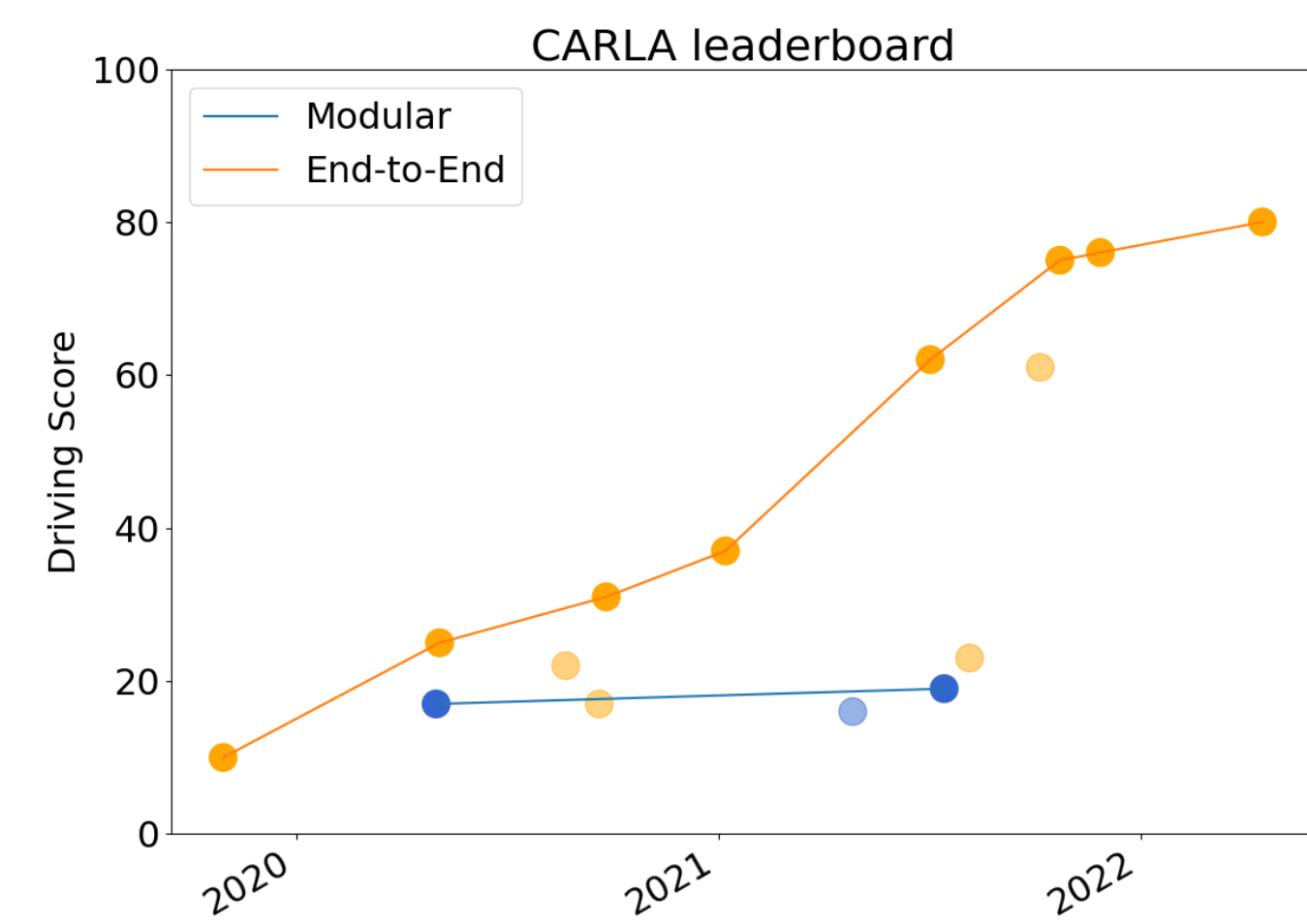


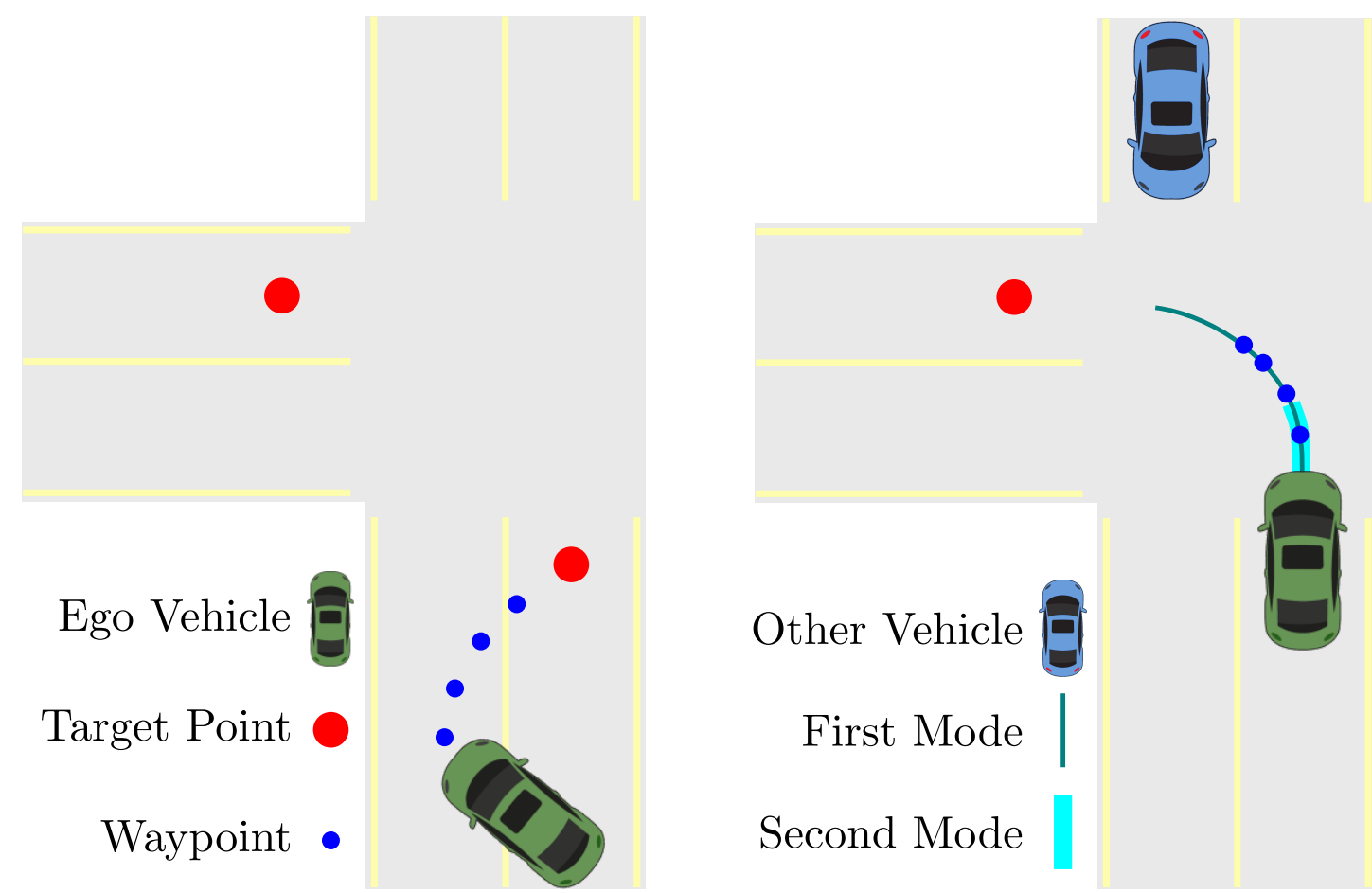
Hidden Biases of End-to-End Driving Models

Bernhard Jaeger Kashyap Chitta
Andreas Geiger

End-to-end models made rapid progress in recent years.

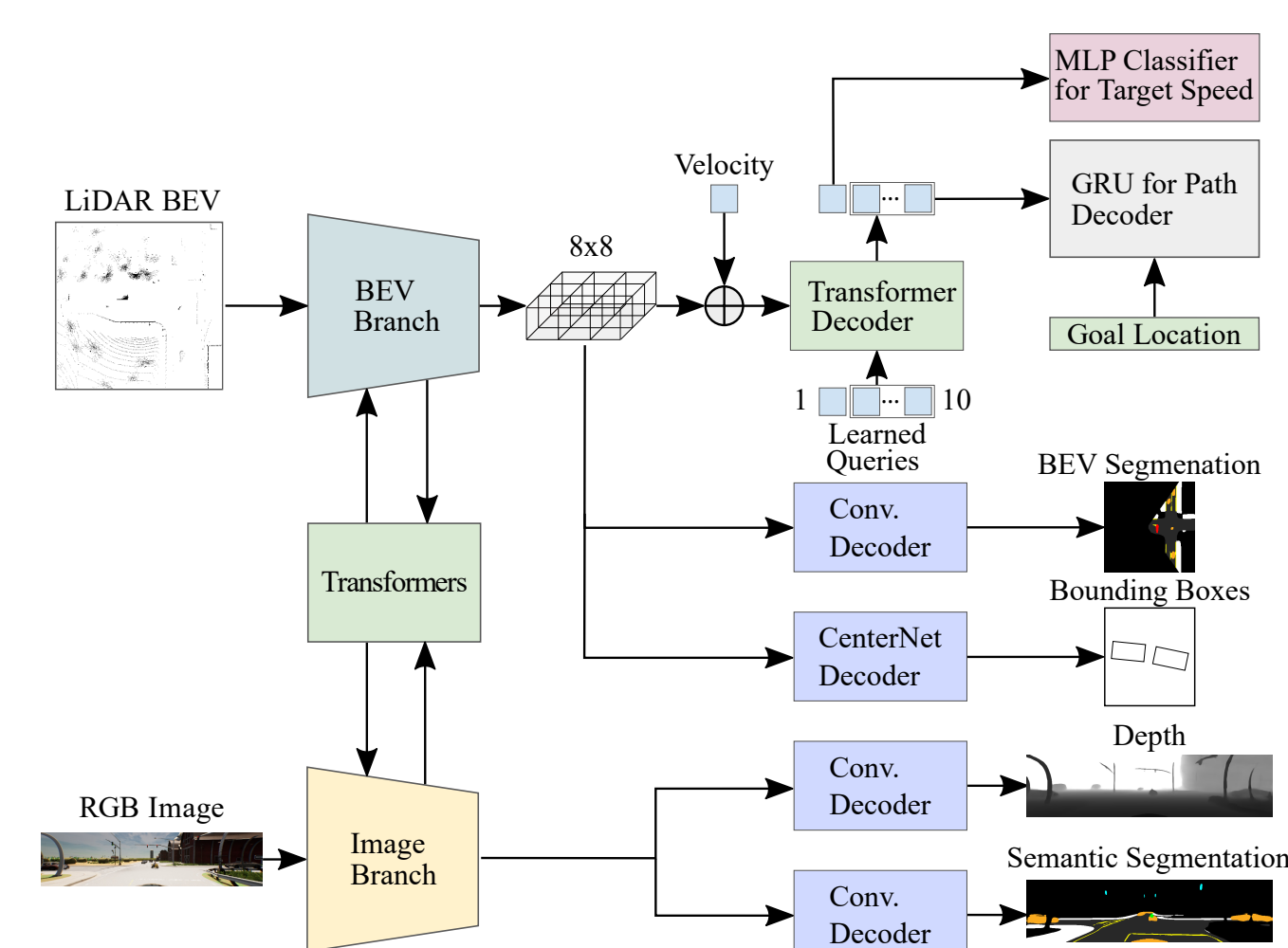


We identify two hidden biases crucial for their success.

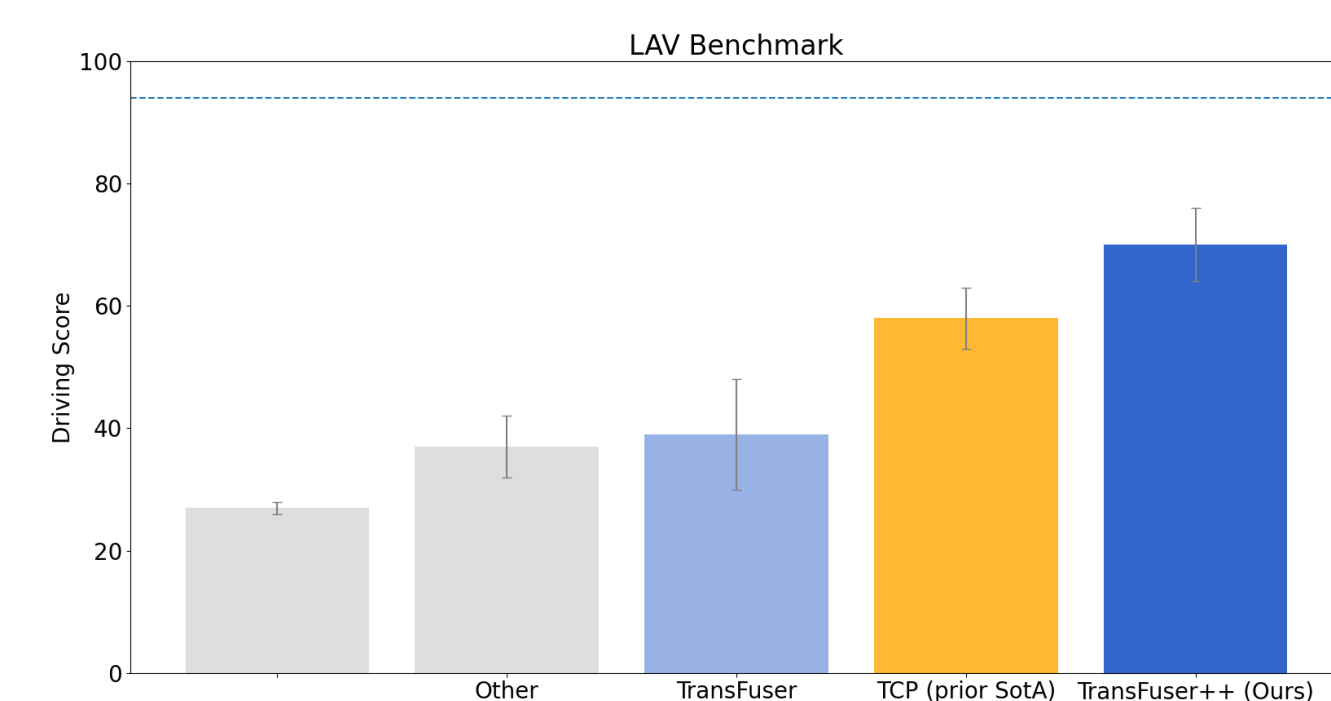


#1 Map shortcut #2 Waypoint ambiguity

We develop TransFuser++ using these insights.



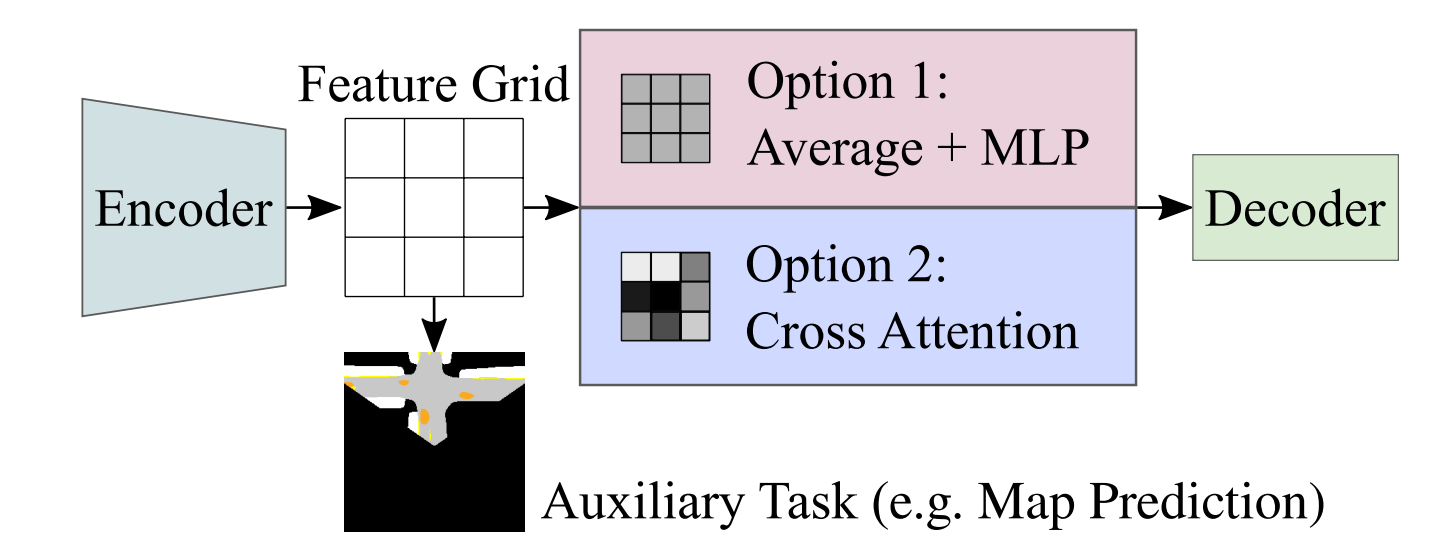
TransFuser++ achieves state-of-the-art results.



More results in the paper.

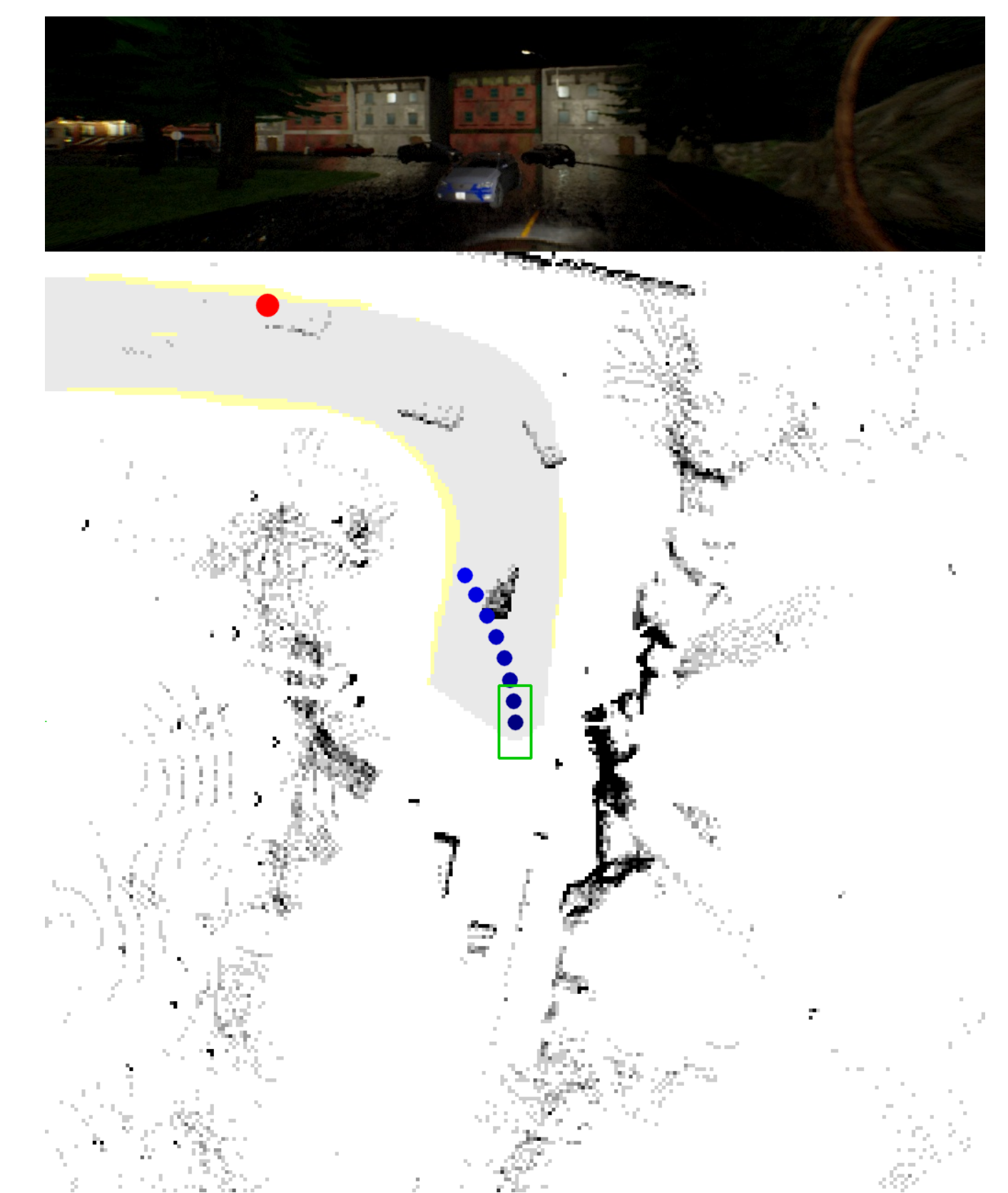


Average pooling removes spatial information.

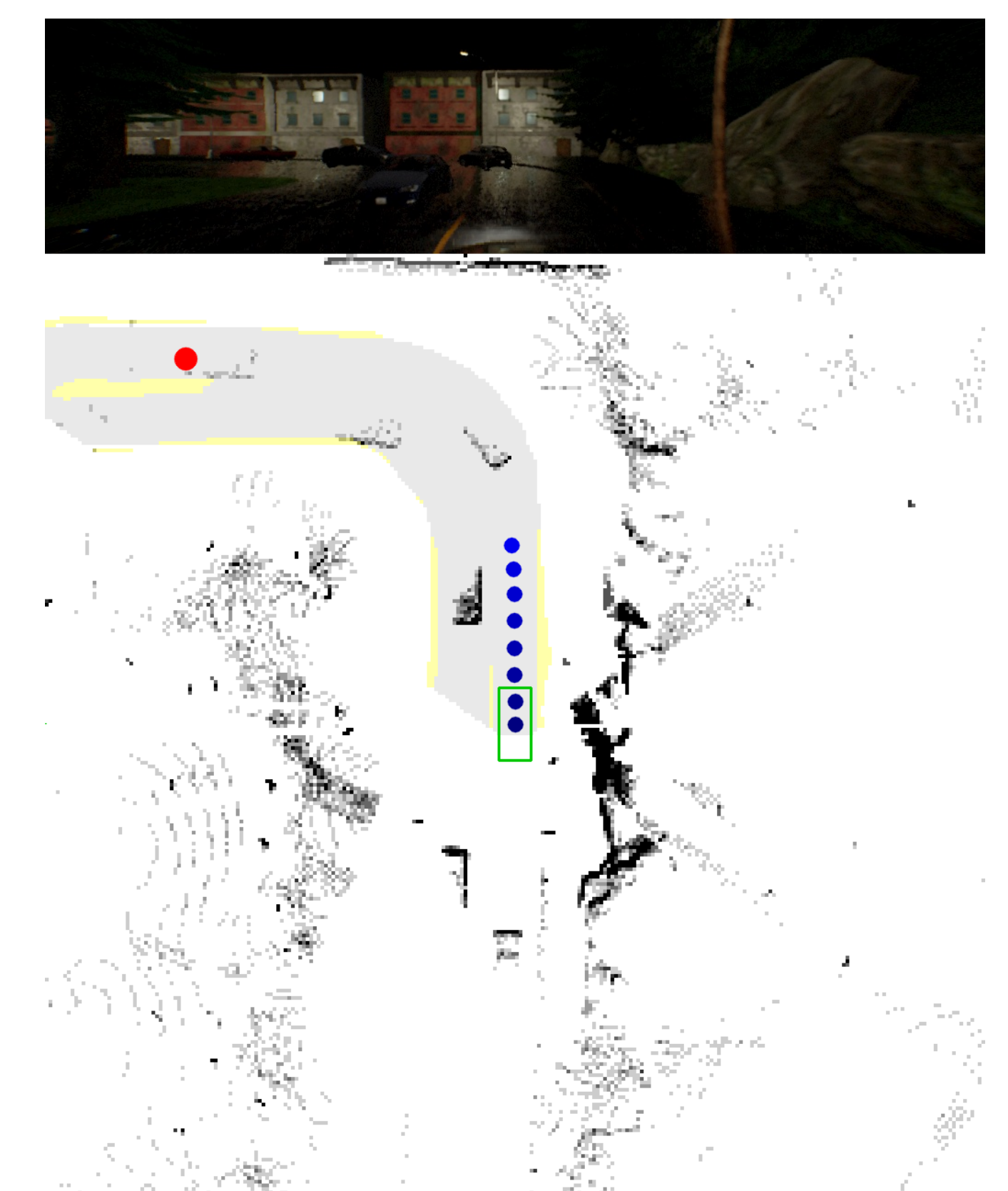


Transformer-based attention pooling reduces the map bias.

Global Average Pooling



Transformer Decoder



#1. End-to-end driving models implicitly rely on maps to recover from steering errors.

#2. The waypoint representation improves driving by interpolating between multi-modal futures.