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## Modeling and Control of an Autonomous Tractor

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# MODELING AND CONTROL OF AN AUTONOMOUS TRACTOR

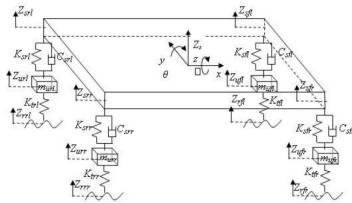
Lukasz MIZGALSKI, Stéphane VICTOR, Pierre MELCHIOR,  
Hugo GIMBERT, Steve NGUYEN,

## OBJECTIVES

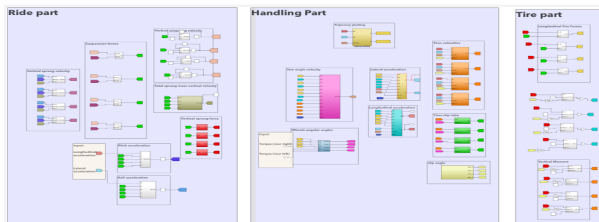
- **Modeling** for better simulation and Control System Design
- **Sense & Avoid**
- **Trajectory planning** and motion planning
- **Robust Control** for disturbance rejection, system uncertainties and path tracking
- **Optimization** for high performances and high efficiency

## MODELING

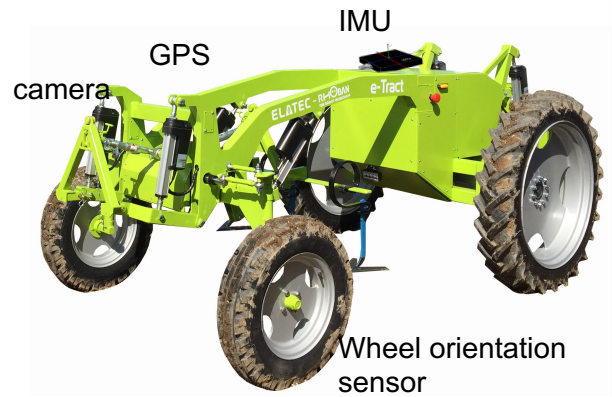
Analytical Model



Simulink Model

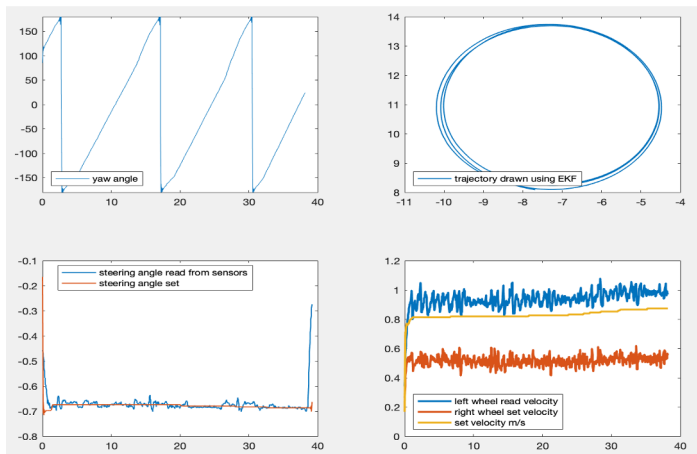


## SENSE & AVOID

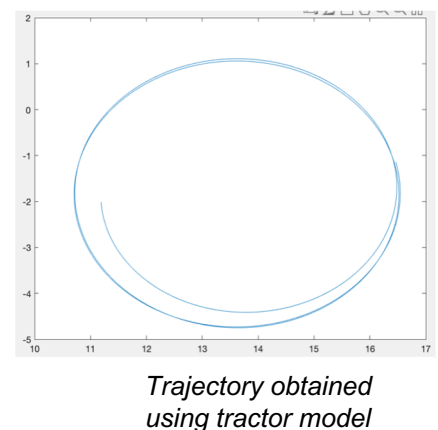


## RESULTS : MODEL CALIBRATION

Calibration with E-Tract:



Motion planning:



## CONCLUSION

- Operational model on simlulink
- Sensor modeling for E-Tract positioning and Sense&Avoid

## PERSPECTIVES

- Trajectory planning
- Control System Design