Tasks	Deliverables	Success Criteria
Task 2.1: Models for autonomous navigation in agricultural fields	 Models for object detection and avoidance in complex environments Models for navigation in challenging driving scenarios Deep Learning models that recreate 3D environments by incorporating multi-modal data to determine safe and efficient paths for autonomous vehicles in agricultural fields Models that incorporate spatial and temporal information to differentiate soft and hard obstacles and detect negative obstacles. 	 Capabilities to avoid complex obstacles Capabilities to navigate in complex scenarios Digital twins for multiple crops, field types, seasons, etc.
Task 2.2: Models for automating labor- intensive agricultural operations	 Improved algorithms for early detection, identification, and classification of stressors Decision-making capabilities that characterize plant canopies and relate that information to nutrient and water needs, etc. Models that provide perception information in real time for conversion to decisions that actuators can act on. 	 Robust stress- classification algorithms Robust decision-making capabilities regarding plant needs Ability to perceive and act in real time
Task 2.3: Partnership with computer scientists to develop robust Al models	 AI researchers who are collaborating with our team to advance AI models that address unique challenges in AA AI researchers serving as advisors and supervisors for students and postdocs doing work related to this project 	 >1 AI researcher per region collaborating on this project >1 AI researcher per region serving as advisor/supervisor on this project