

Short Arc Angles-Only Initial Orbit Determination for Reliable Reacquisition of Low Earth Orbit Objects

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Low Earth orbit is becoming increasingly congested, making accurate initial orbit determination (IOD) critical for object tracking. However, optical sensors frequently produce short angular arcs, which classical IOD methods struggle with. This research evaluates seven classical and modified angles-only IOD algorithms using real short arc LEO data spanning 0-4° of arc. Solution accuracy is assessed and reacquisition feasibility is examined through comparison against real secondary observations and over-time propagation analysis. This provides operational guidance for LEO object tracking and catalog maintenance.



Defense | Wednesday, June 3rd | 4:00-6:00 pm
<https://calpoly.zoom.us/j/81076294717>