XXII Brazilian Colloquium on Orbital Dynamics,
2 - 6 December, 2024

CBDO

Ilustração: New Horizons - Plutão - Caronte / NASA

Program and
Book of Abstracts

National Institute for Space Research
INPE
Av. dos Astronautas, 1758
São José dos Campos, SP, Brazil

CBDO 087 - A

Evaluation of centroiding algorithms for an autonomous star tracker

Marcio Afonso Arimura Fialho

Instituto Nacional de Pesquisas Espaciais, Sao Jose dos Campos, Brazil

marcio.fialho@inpe.br

This work presents a comparison between centroiding algorithms targeting an autonomous star tracker being developed at INPE, in terms of centroiding accuracy and computational cost. The algorithms compared include the traditional center of mass (COM) centroiding algorithms and shape fitting algorithms. This work also discusses about background level subtraction and image sensor array non-uniformity correction.

References
[1] Fialho, M. A. A. et al., The Brazilian Autonomous Star Tracker... AAS 16-322, 2016.
[2] Zhang, Q. F. et al. A comparison of centring algorithms... MNRAS 505, 5253–5259, 2021
[3] Vyas, A. et al. Performance of Centroiding Algorithms... DOI: 10.1109/ARTCom.2009.30 2009.

Poster