

11.09.2019: Kelvins Day

Welcome note



Challenges in Space



Marcus Märtens, Advanced Concepts Team
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Kelvins Day: Purpose



- ❖ Celebrate the achievements of the participants of two recent competitions:
 - **Proba-V Super-resolution**
 - **Satellite Pose Estimation**
- ❖ Connect
 - Competition organizers and partners (Stanford University, VITO)
 - ESA scientists and engineers
 - Expert participants
- ❖ Learn about the most successful approaches to each corresponding competition
- ❖ Discuss emerging trends and exciting research opportunities
- ❖ Gather feedback from the active Kelvins community



Agenda: Morning



- 9:30** Kelvins day welcome note (Marcus Märtens and Dario Izzo, ESA)
- 9:50** Satellite Pose Estimation Challenge: Analysis and Results (Máté Kisantal, ESA)
- 10:10** High-Fidelity Validation and Training of Advanced Distributed Space Systems (Jeff Park, Stanford University)
- 10:30** Break
- 11:00** Proba-V Super-resolution: Analysis and Results (Marcus Märtens, ESA)
- 11:15** The Vegetation Instrument: a miniaturized high performance payload for daily global vegetation monitoring - a design overview (Jorg Versluys, ESA)
- 11:30** Proba-V: Mission and Spacecraft Overview (Stefano Santandrea, ESA)
- 11:45** The Proba-V operational processing system, serving daily updates on global vegetation (Stefan Livens, VITO)
- 12:00** Lunch



Agenda: Afternoon



- 13:00** Deep learning and Unreal Engine for Spacecraft Pose Estimation (Pedro F. Proença, Surrey Space Centre)
- 13:25** Segmentation-driven Satellite Pose Estimation (Kyle Gerard, EPFL)
- 13:50** Combining Machine Learning and Geometric Optimisation to solve Pose Estimation (Tat-Jun Chin, University of Adelaide)
- 14:15** Break
- 14:45** ESRGAN approach for earth imaging super resolution (Alexander Aroyo and Elisa Maiettini, IIT)
- 15:00** Proba-V: A Short Summary of my Odyssey (Matteo Taccola, ESA)
- 15:25** HighRes-net: Deep MFSR by recursive fusion (Michel Deudon, Zhichao Lin and Freddie Kalaitzis, Element AI)
- 15:50** DeepSUM: Deep neural network for Super-resolution of Unregistered Multitemporal images (Andrea Bordone Molini, Politecnico di Torino)
- 16:15** Award Ceremony

