Institut für Photogrammetrie

Benchmark on Image Matching – the Current State

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Benchmark on Image Matching
State – Results - Evaluation

- 8:30 – 10:30 Benchmark State – Results - Evaluation
- Benchmark on Image Matching – Implementation and current state
  - N. Haala (ifp, Stuttgart)
- Presentations of results from participating groups:
  - C. Ginzler (WSL - Swiss Federal Institute for Forest, Snow and Landscape Research)
  - B. Brunner (FMM - Forest Mapping and Management, Salzburg)
  - R. Schneider (Digital Photogrammetry GEOSYSTEMS GmbH, Germany)
  - P. Nonin (GEO-Information Services Astrium Services)
  - C. Ressl (GEO TU Wien, Vienna)
  - M. Idrissa (Royal Military Academy, Brussels)
  - K. Gutjahr (Joanneum Research, Graz)
  - M. Pierrot-Deseilligny (IGN France)
  - M. Rothermel (ifp, University of Stuttgart)
- 10.30 – 11.00 Coffee break
- 11.00 – 11.30 Comparison and discussion of computed DSM results
  - N. Haala (ifp, Stuttgart):
- 11:30 – 12:45: Break-out session
  - Future of the EuroSDR Image Matching Benchmark

Benchmark on Image Matching: Data sets and deliverables

- Implementation of the benchmark
  - Provide aerial images as joint test data set for potential participants
  - Limit costs and time of data processing by restriction to two representative data sets of different landuse and block geometry
- Data set Vaihingen/Enz
  - semi-rural, moderate ground sampling distance and image overlap
  - representative for statewide data collection
- Data set München
  - high overlap and resolution
  - applications in densely built-up urban area
- Deliverables
  - DSM grids, raster width corresponding to image GSD
    - Evaluate available data quality
  - Questionaire on used IT infrastructure
    - Computational effort with respect to time and hardware

Questionaire on IT Infrastructure: Presentations from participating groups

Participant IT declaration form

1) Software Product:

The following SW product was used during the test

.....

2) Test data set:

The test data set (....., # of images ...., GSD ....., total size of image data)

was used for the evaluation.

3) IT Environment

The test was carried out on the following IT Environment

Computer System

# of cores 1 2 4 8 16 other

.....

Type of processors

.....

Speed rate of processors (GHz)

.....

RAM (GByte), Type of RAM

.....

GPU (if available)

.....

Type of GPU

Storage System

Type of Storage Media

.....

Speed of Storage Media (RPM)

.....

Size of Storage System (available)

.....

Network

Type of Network

.....

Transfer Speed of Network 100 Mb 1 Gb 10 Gb other

.....

Environmental requirements

special rewquirement if ther are any

.....

.....

Processing time

Data Ingest ..... h ..... min

AT ..... h ..... min

DSM ..... h ..... min

Output ..... h ..... min

Other comments and remarks

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.....

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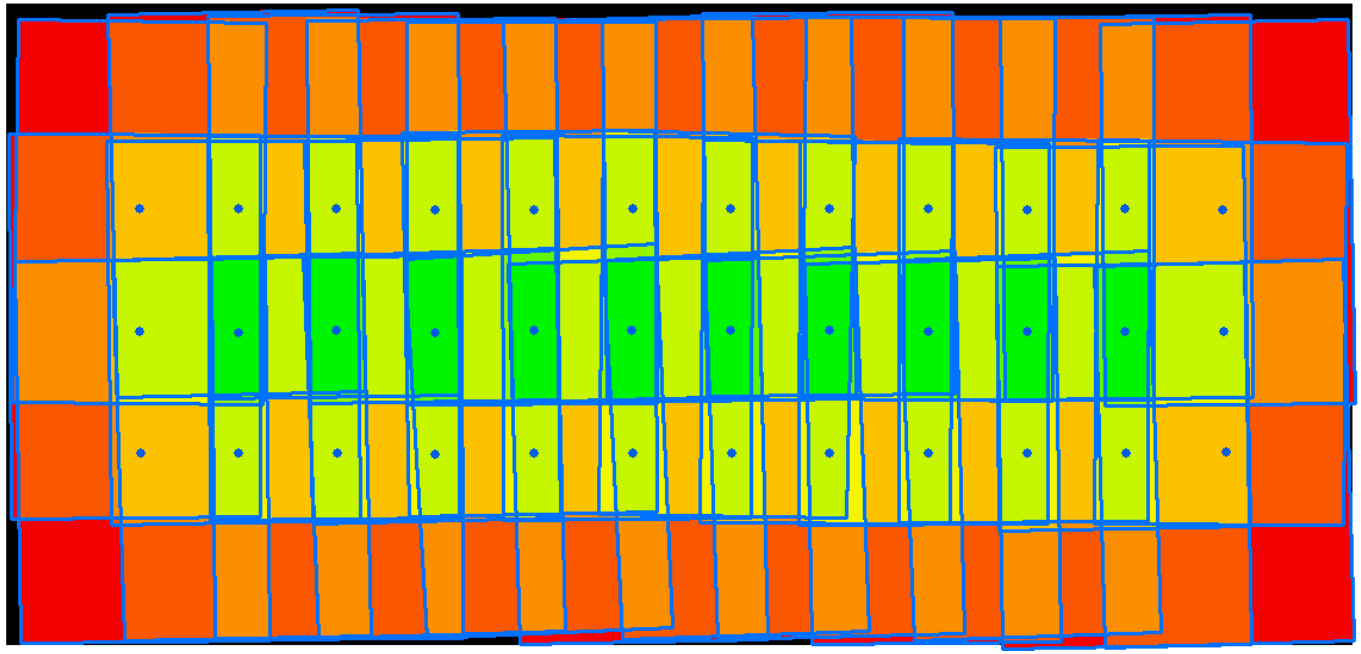
Data sets: Vaihingen/Enz

- DSM area 7.5kmx3.0km
- Semi-rural landuse, hilly area

Data sets: Vaihingen/Enz

- DSM area 7.5kmx3.0km, 20cm grid width, central part
  - four-folded to nine-folded overlap
- Semi-rural landuse, hilly area

Data sets: Vaihingen/Enz



- Block of 3 strips with 12 images each
  - Overlap 63% in flight and 62% cross flight
  - Up to nine-folded overlap (dark green).
- Flight captured on September 11, 2008 (DGPF Camera Test)
- Camera UltraCam-X, 16 bit, GSD 20 cm
  - PAN images, Tiled Tiff uncompressed 8 bit/pix
  - 9420x14430 pixel at a data volume of 180 Mbyte/image

Data sets: Vaihingen/Enz

- DSM size 7.5kmx3.0km, grid with of 20cm central part
  - four-folded to nine-folded overlap

Data sets: München

- Block of 3 image strips with 5 images each
  - 80% in flight 80% cross flight overlap
  - up to fifteen-folded areas
- DMC II 230, GSD of 10cm
  - March, 3 2011
  - 15552x14144 pix,16 bit
- Central part of the city

Data sets: München

- Central part of the city
  - Occlusions
  - Shadows
- High overlap, small GSD
  - Applications in urban environments

Delivered data sets

- Results presented during workshop
  - C. Ginzler (WSL - Swiss Federal Institute for Forest, Snow and Landscape Research)
  - B. Brunner (FMM - Forest Mapping and Management, Salzburg)
  - R. Schneider (Digital Photogrammetry GEOSYSTEMS GmbH, Germany)
  - P. Nonin (GEO-Information Services Astrium Services)
  - C. Ressl (GEO TU Wien, Vienna)
  - M. Idrissa (Royal Military Academy, Brussels)
  - K. Gutjahr (Joanneum Research, Graz)
  - M. Pierrot-Deseilligny (IGN France)
  - M. Rothermel (ifp, University of Stuttgart)
- Results made available to project team
  - H. Hirschmüller German Aerospace Center (DLR)
    - DLR-SGM
  - K. Legat (AVT Photogrammetrie und Bildflug)
    - Ultramap, Match-T
  - J. Gonçalves (University of Porto)
    - AgiSoft