



**TIQXMMI**

Тошкент Ирригация ва Қишлоқ Хўжалигини  
Механизациялаш Мухандислари Институти



**G V G**  
GEODEZIYA VA  
GEOINFORMATIKA

**“Замонавий геодезик асбоблар” фанидан**

# **14-мавзу: Дрон қийматларини дастурий таъминотда қайта ишлаш**

**Маъruzachi: доцент Инамов Азиз Низамович**

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## **Reja.**

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- 1, Agisoft photo scanе dasturi xaqida ma`lumotlar
- 2, Agisoft photo scanе dasturini yuklab olish va o`rnatish
- 3, Agisoft photo scanе dasturini aktivlashtirish
- 4, Agisoft photo scanе dasturida ishlash

# I. Agisoft photo scene dasturi xaqida ma`lumotlar

Agisoft PhotoScan - bu professional 3D-model yaratishga yo'naltirilgan zamonaviy asoslangan yechim sanalib, harakatsiz tasvirlardan sifatli 3D kontent. Eng ko'p o'lchamli 3D rekonstruktsiya texnologiyasiga asoslanib, u tasodifiy tasvirlar bilan ishlaydi hamda nazorat qilinadigan va nazoratsiz sharoitda samarali hisoblanadi. Rasmlar rekonstruksiya qilinadigan ob'ekt kamida ikkita fotosuratda bo`lishi hsart. Har ikkala rasmni moslashtirish va 3D modelni qayta tiklash to'liq avtomatlashtirilgan.

Agisoft photo scene dasturi asosan rastrlarni qoplanishini amalga oshirish orqali uch o'lchamli modellar yaratish mumkin. Dastur qoplangan rastrlardan nuqtalarning bulutli tasvirini hosil qiladi. Hosil bo`lgan bulutli nuqtalari birlashtiriladi. Natijada sirt hosil bo`ladi. So`ngra sirtga tekstura beriladi. Shu tariqa uch o'lchamli modellar yaratiladi.



## **Minimal konfiguratsiya talabi**

- Windows XP yoki undan keyingi versiyalar (32 yoki 64 bit), Mac OS X Lion yoki undan keyin, GLIBC bilan Debian / Ubuntu
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2.13+ (64 bit)

- Intel Core 2 Duo protsessori yoki unga o'xshash
- 4 Gbayt RAM

## **Tavsiya etilgan konfiguratsiya**

- Windows 7 SP 1 yoki undan keyingi versiyasi (64 bit), Mac OS X, GLIBC 2.13+ bilan Debian / Ubuntu (64 bit)
- Intel Core i7 protsessori
- 16 GB of RAM

PhotoScan tomonidan ishlov berish mumkin bo'lgan fotosuratlar soni mavjud RAMga bog'liq ishlatiladigan rekonstruksiya parametrlari. Agar bitta fotosurat o'lchamlari 10 MPix, 4 Gb ga teng bo'lsa RAM 30 dan 50 tagacha rasmga asoslangan modelni yaratish uchun etarli. 16 Gbayt operativ xotirada 300-400 fotosuratni ishlashga imkon beradi.

## 2. Agisoft photo scene dasturini yuklab olish va o`rnatish

<http://www.agisoft.ru>

The image shows two screenshots of the Agisoft website. The left screenshot displays the main navigation bar with links for Agisoft, Products, Tutorials, Support, Forum, Wiki, Resellers, About Us, and Contacts. The 'Products' link is highlighted with a red circle. Below it, the 'Products' section is expanded, showing three items: Agisoft PhotoScan, Agisoft StereoScan, and Agisoft Lens. The Agisoft PhotoScan item is detailed with a sub-section for 'Professional edition'. The right screenshot is a detailed view of the Agisoft PhotoScan Professional edition page. It includes sections for 'Supported formats', 'Main Features' (listing various reconstruction and processing capabilities), '3D Examples', and a prominent 'Download demo' button. The 'Download demo' button is also circled in red.

**Agisoft** Products Tutorials Support Forum Wiki Resellers About Us Contacts

## Products

**Agisoft PhotoScan**  
3D reconstruction software automatically builds textured 3D models using digital photos of the scene. Allows for precise textured mesh models reconstruction.

[Standard edition](#) [Professional edition](#)

For 3D designers and for 3D content authoring for presentation purposes.

**Agisoft StereoScan**  
Agisoft StereoScan is a tool you can use to create textured 3D models from stereo image pairs. The images can be taken from any positions, providing that an object to be reconstructed is visible on both frames.

**Agisoft Lens**  
Agisoft Lens is an automatic lens calibration software, which uses LCD screen as a calibration target. It supports estimation of the full camera calibration matrix, including non-linear distortion coefficients. Estimated calibration parameters can be saved in

**Agisoft PhotoScan Professional edition**

Agisoft PhotoScan Pro allows to generate high-resolution georeferenced orthomosaics up to 5 cm accuracy with GCPs and exceptionally detailed DEMs / textured polygonal models. The fully automated workflow enables a non-specialist to process thousands of aerial images on a desktop computer to produce professional class photogrammetric data.

**Main Features**

- Aerial and close-range triangulation
- Point cloud generation (sparse / dense)
- Polygonal model generation (plain / textures)
- Setting coordinate system
- Digital Elevation Model (DEM) generation
- True orthophoto generation
- Georeferencing using flight log and I/O GPS
- Multispectral imagery processing
- 3D reconstruction for dynamic scenes
- Python scripting support

**3D Examples** (the latest version of Adobe Reader is required to view these models)

See also: [Featured projects with Agisoft PhotoScan](#)

Agisoft PhotoScan Professional edition for only \$3499

[Compare with Standard edition](#)

**Download demo**

Documentation

Stand-alone license

Educational license

Sample photos

Buy Stand-alone license

Buy Educational license

Upgrade from Standard edition

# 3. Agisoft photo scan dasturni aktivlashtirish

<http://www.agisoft.ru>

**Agisoft PhotoScan Professional edition**

Agisoft PhotoScan Pro allows to generate high-resolution georeferenced models up to 5 cm accuracy with GCPs and exceptionally detailed DEMs / textured polygonal models. The fully automated workflow enables a non-specialist to process thousands of aerial images on a desktop computer to produce professional class photogrammetric data.

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**3D Examples** (the latest version of Adobe Reader is required to view these models)

See also: [Featured projects with Agisoft PhotoScan](#)

Agisoft PhotoScan Professional edition for only \$3499

Compare with Standard edition

**Download demo** (Red circle)

**Documentation**

- [Agisoft PhotoScan User Manual \(English\)](#)
- [Agisoft PhotoScan User Manual \(Russian\)](#)
- [Python API Reference](#)
- [Change Log](#)

**Stand-alone license**

- [About Stand-alone license](#)
- Buy Stand-alone license** (Green button)

**Educational license**

- [About Educational license](#)
- Buy Educational license** (Green button)

[Upgrade from Standard edition](#)

## Download demo

### Agisoft PhotoScan Professional edition

Choose your operating system

**Windows**

[PhotoScan Professional 0.9.1 build 1714 \(64 bit\)](#) for Windows XP, Windows Vista and Windows 7.

[PhotoScan Professional 0.9.1 build 1714 \(32 bit\)](#) for Windows XP, Windows Vista and Windows 7.

**Mac OS X**

[PhotoScan Professional 0.9.1 build 1714](#) for Mac OS X 10.6 and later.

**Linux**

[PhotoScan Professional 0.9.1 build 1714 \(64 bit\)](#) for Debian/Ubuntu Linux.

## Request 30-day trial

### Agisoft PhotoScan Professional edition

Please provide your details below

You will receive a 30-day trial license by email after your request is reviewed.

Your name:

Your company:

Your country:

Your e-mail:

**What's next?**

- [Buy Stand-alone license](#)
- [Buy Educational license](#)
- [Back to product page](#)

"OK" is hiding (Red text)

Please provide contact data in the form below. The trial license will be sent to the e-mail indicated. The key will allow to activate Agisoft PhotoScan Professional software and test it in full function mode for 30 days.

If you would like to test Agisoft PhotoScan Standard, please contact us at [info@agisoft.com](mailto:info@agisoft.com)

YOUR NAME

CONTACT E-MAIL

YOUR COMPANY

YOUR COUNTRY

Trial request submitted. Thank you for contacting us.

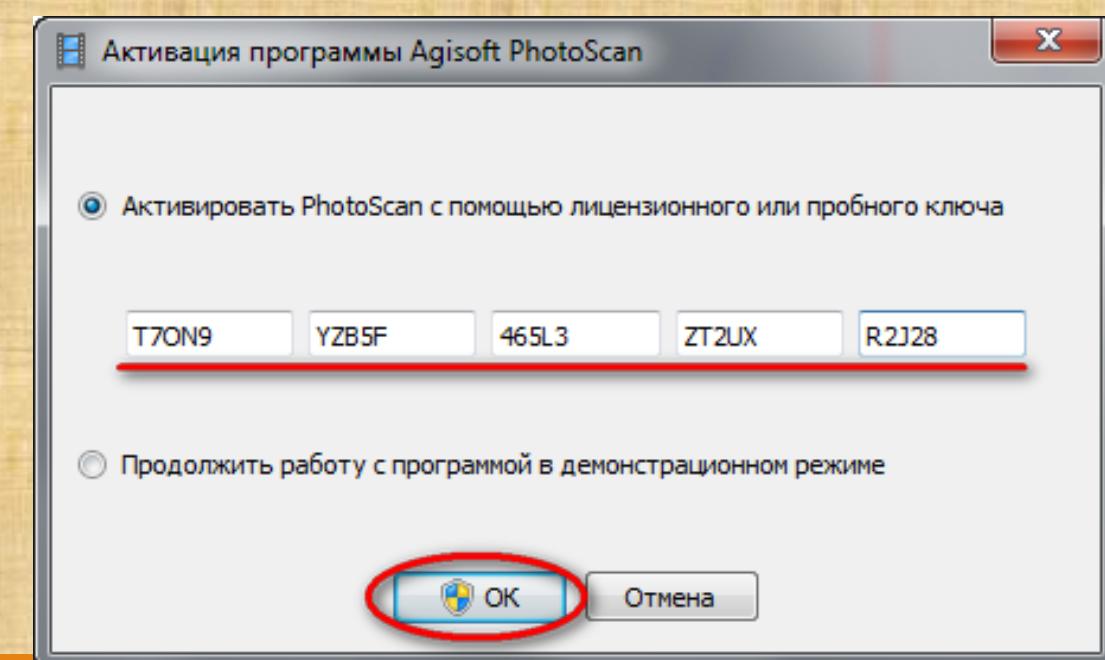
Thank you for your interest in our software.

Please use the following registration number as a 30-day trial License Key:  
T7ON9-YZB5F-465L3-ZT2UX-R2J28

Agisoft PhotoScan Professional installer file is available for downloading at:  
<http://www.agisoft.com/downloads/installer/>

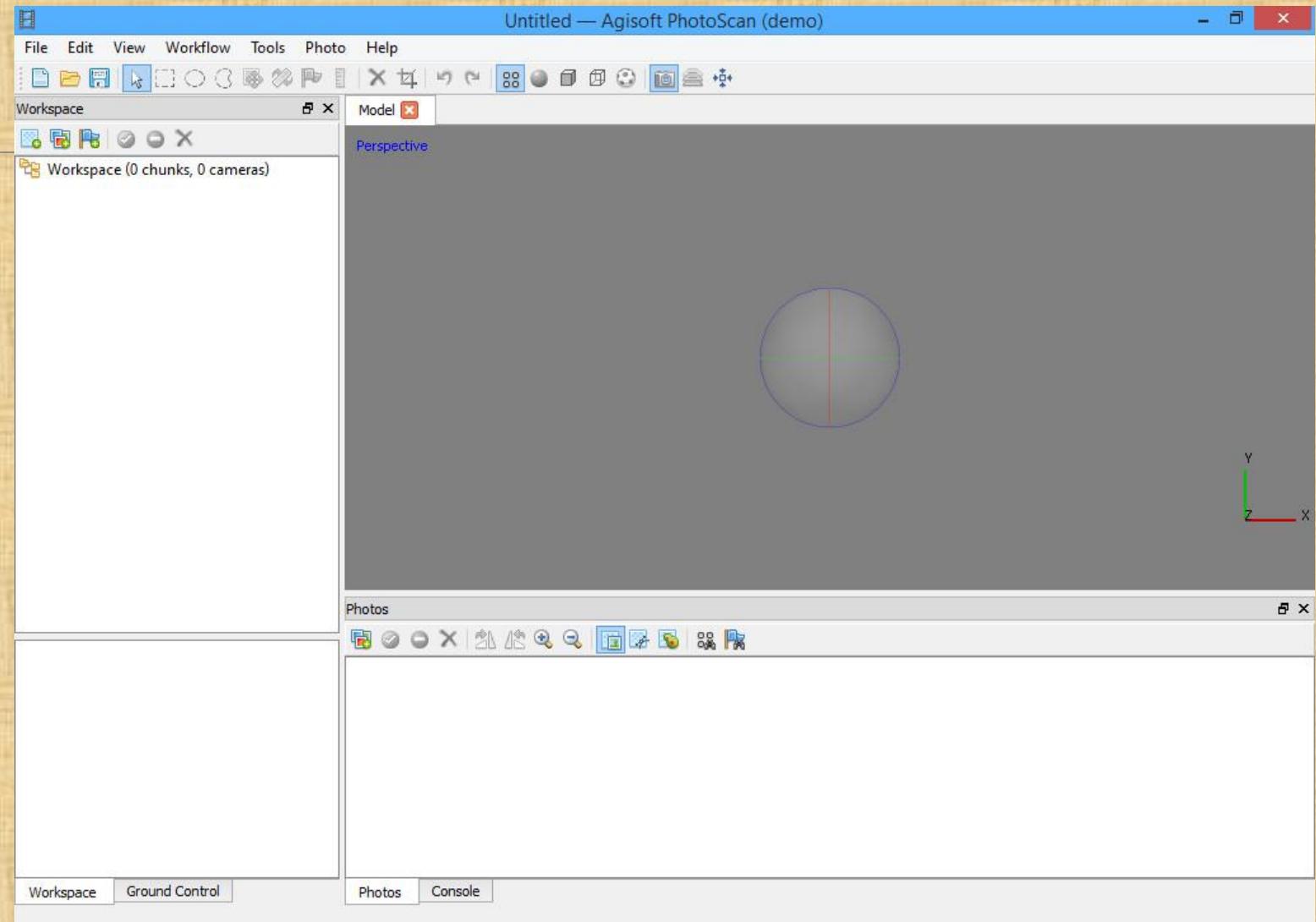
We hope you will enjoy your experience with Agisoft PhotoScan Professional. We would appreciate any feedback as we are eager to improve our program so as it meets the needs and expectations of our clients.

Best regards, Agisoft team.

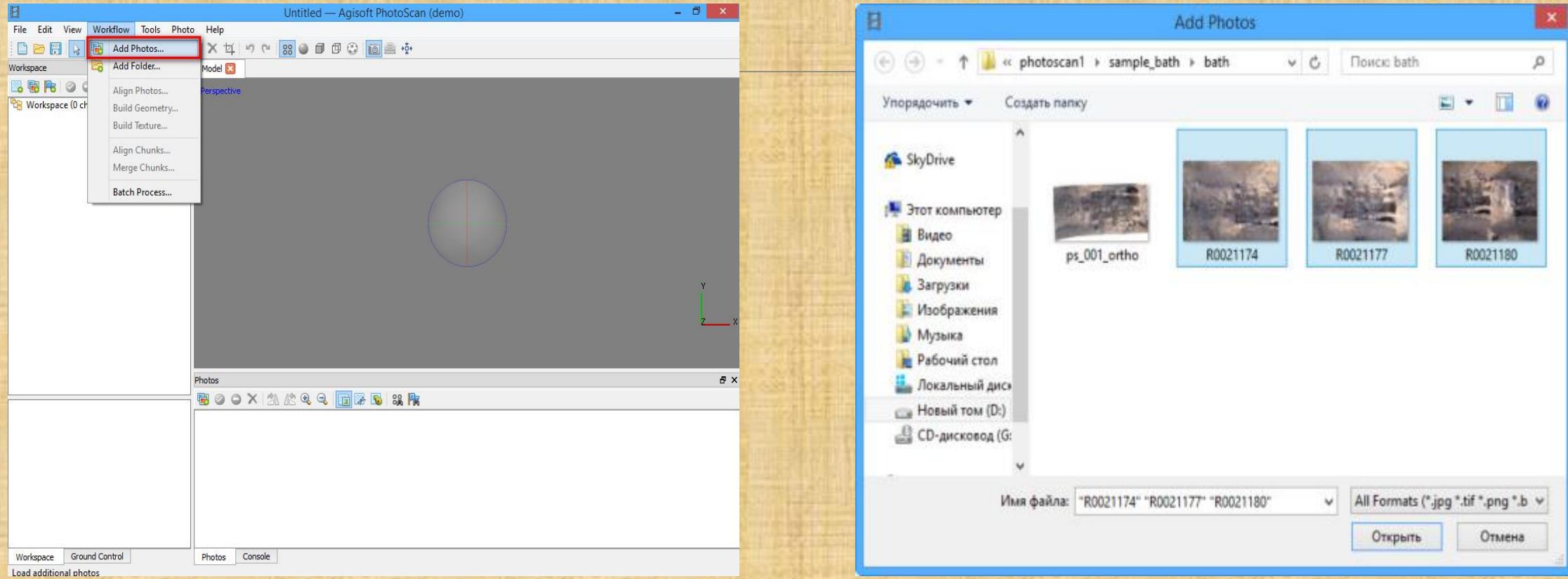


## 4. Agisoft photo scene dasturida ishlash

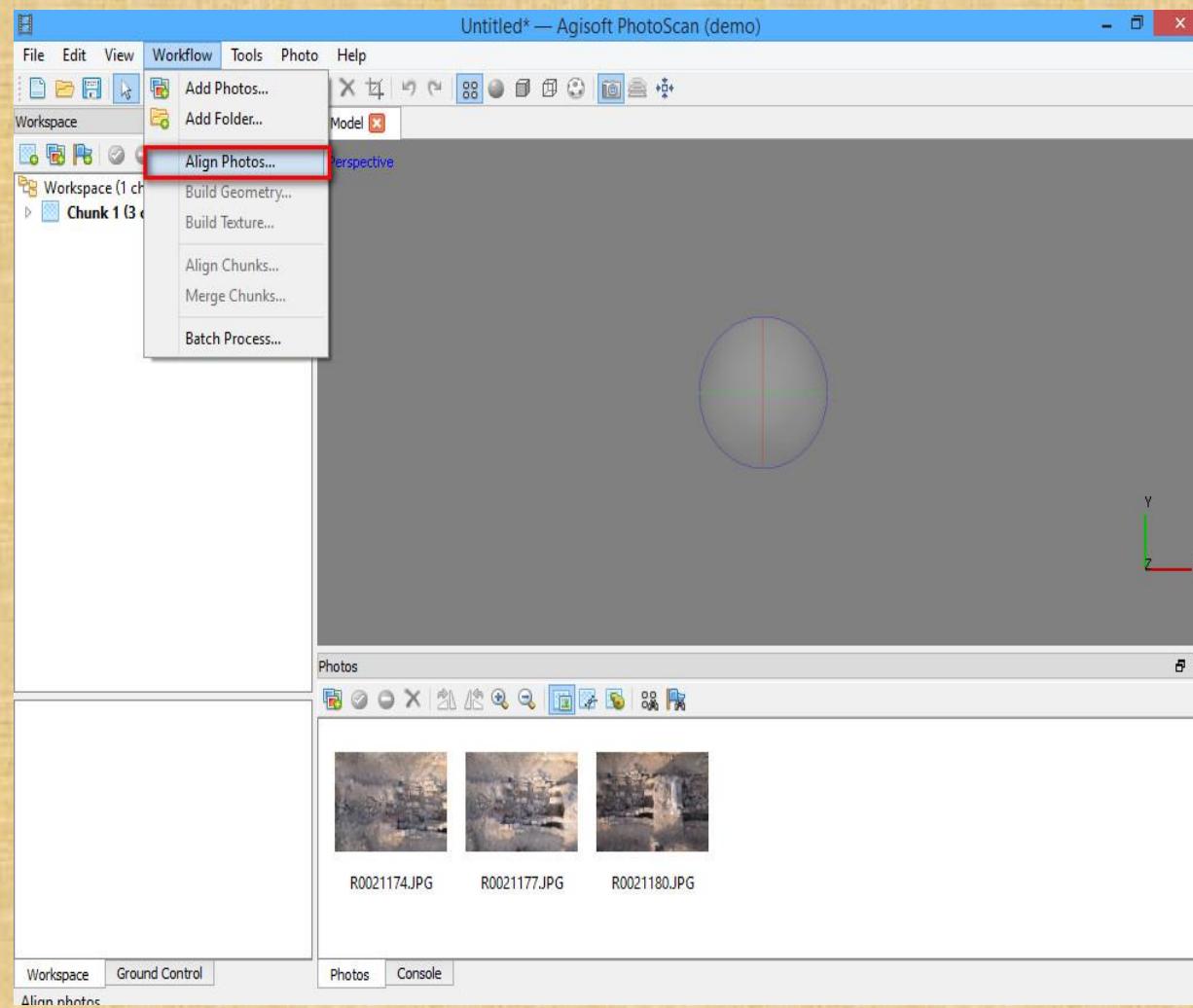
Agisoft photo scene dasturi ishga tushurilgach. Dobavit fotografiya buyrug`i bosiladi. Natijada hosil bo`lgan darchadan kerakli rastrlar belgilanadi va rastrlar yuklab olinadi.



# 3D modelini yaratish jarayoni

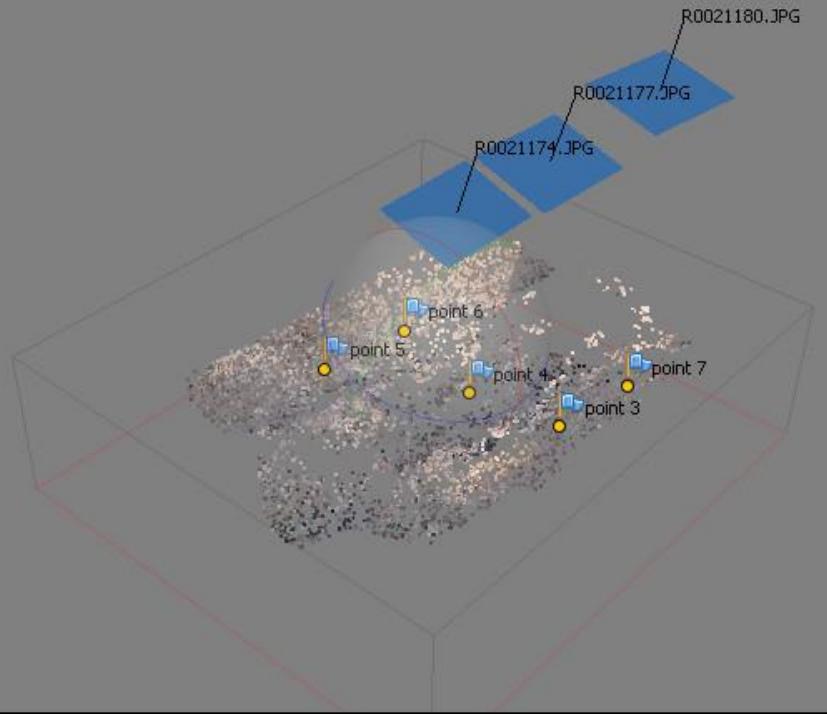


# 3D modelini yaratish jarayoni



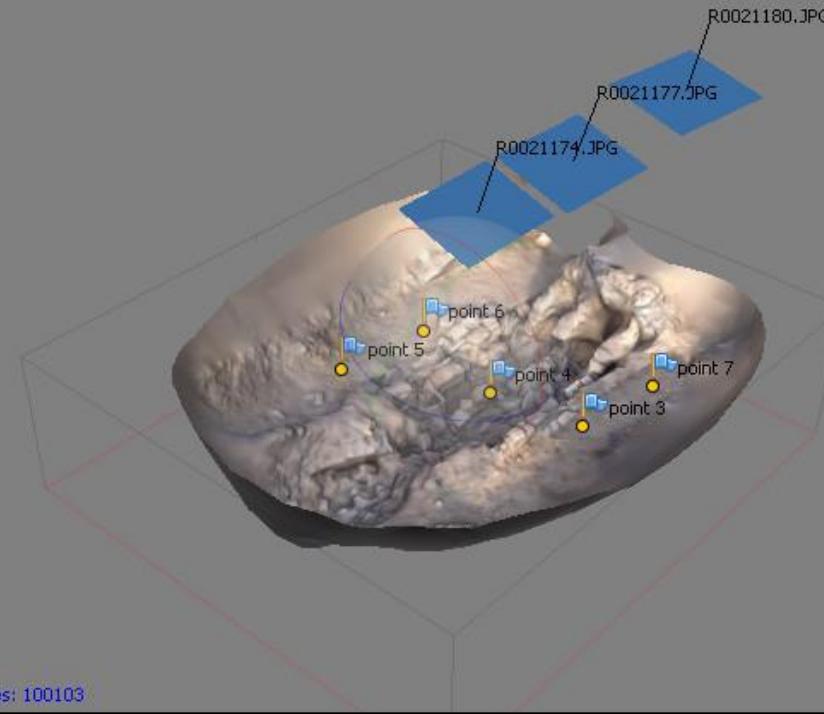
Perspective

1



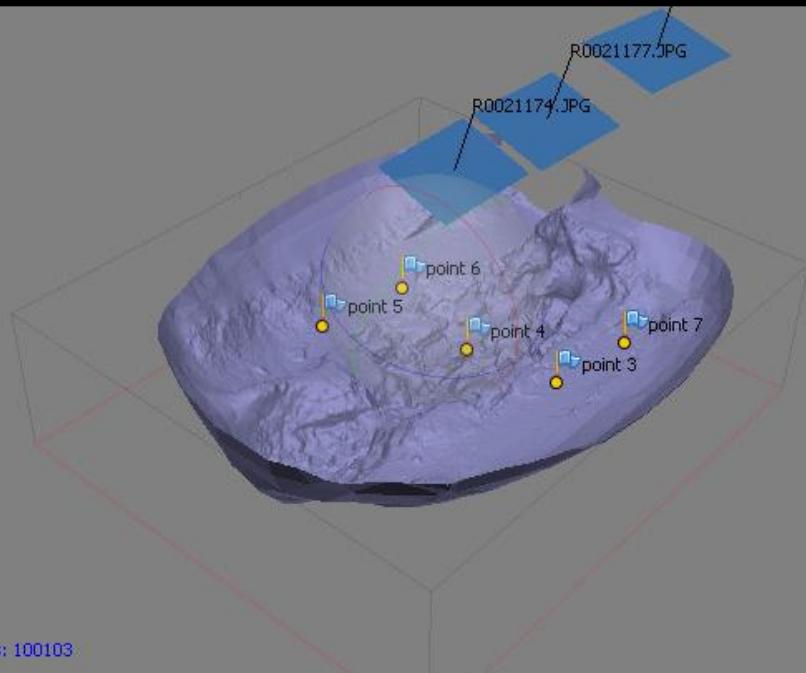
Perspective

3



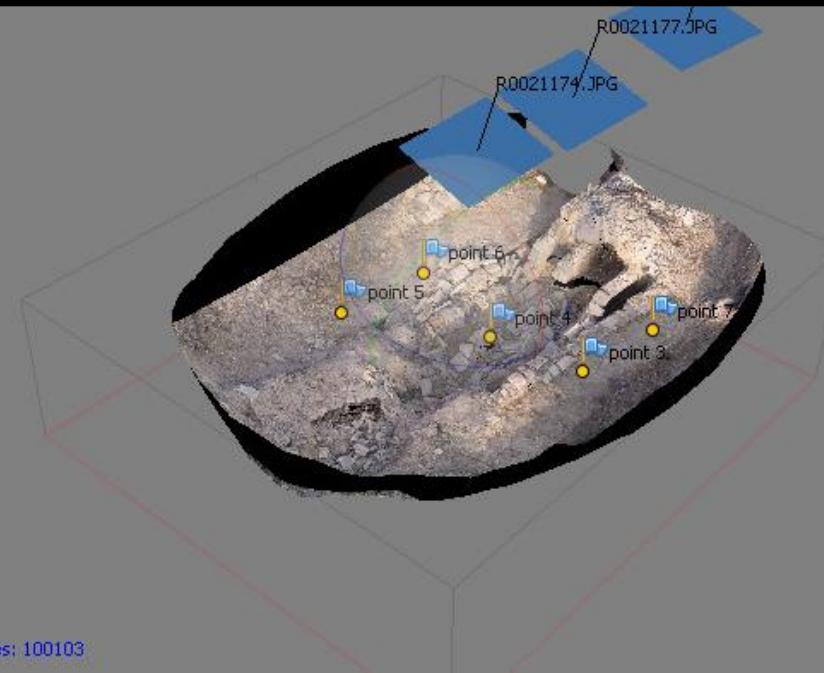
points: 7720

2



faces: 199999 vertices: 100103

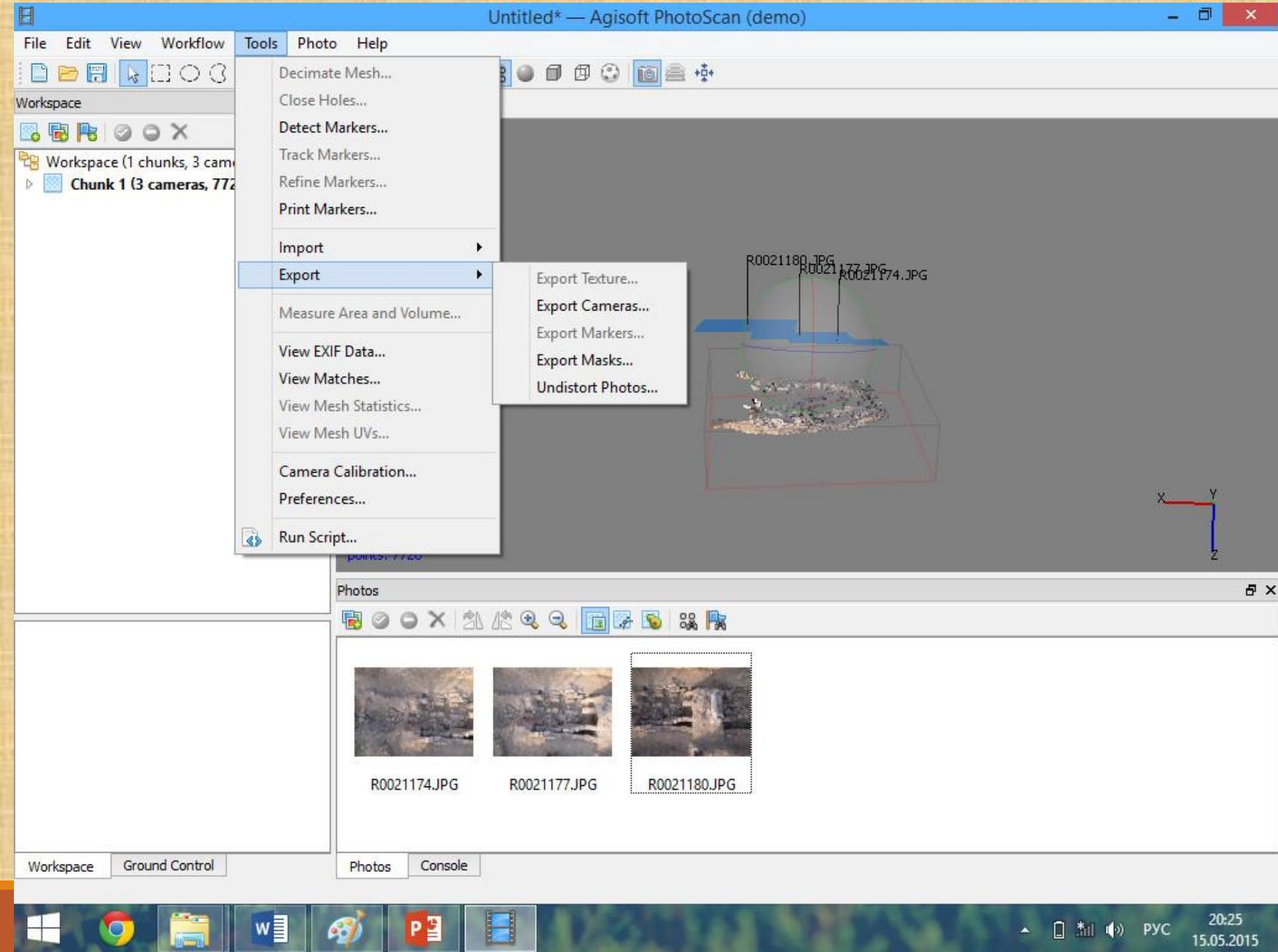
4



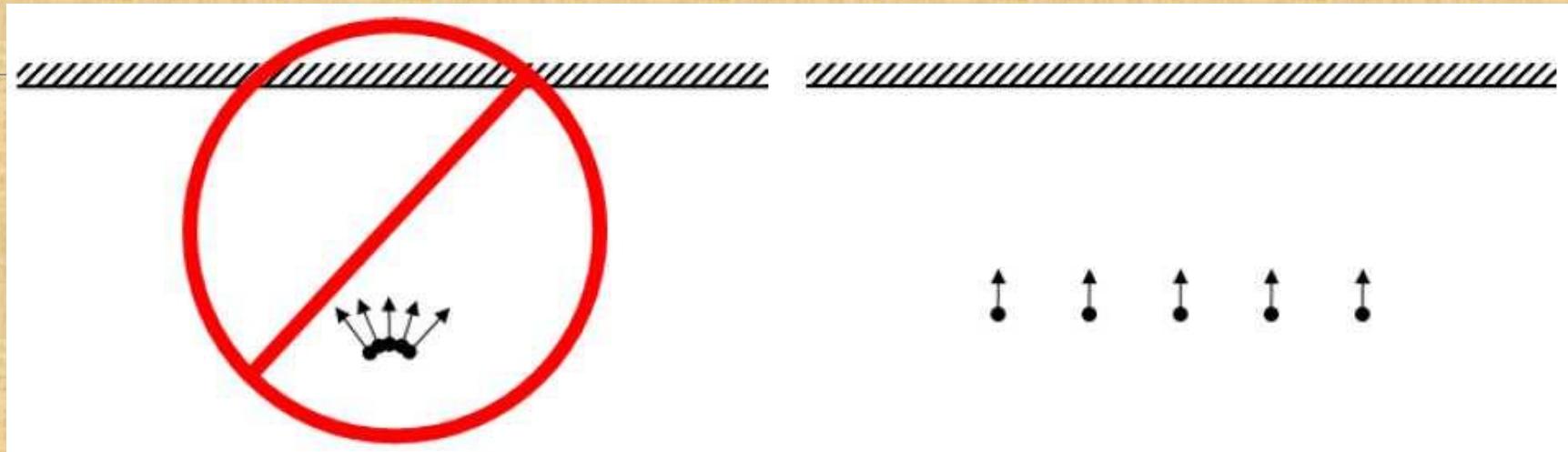
faces: 199999 vertices: 100103



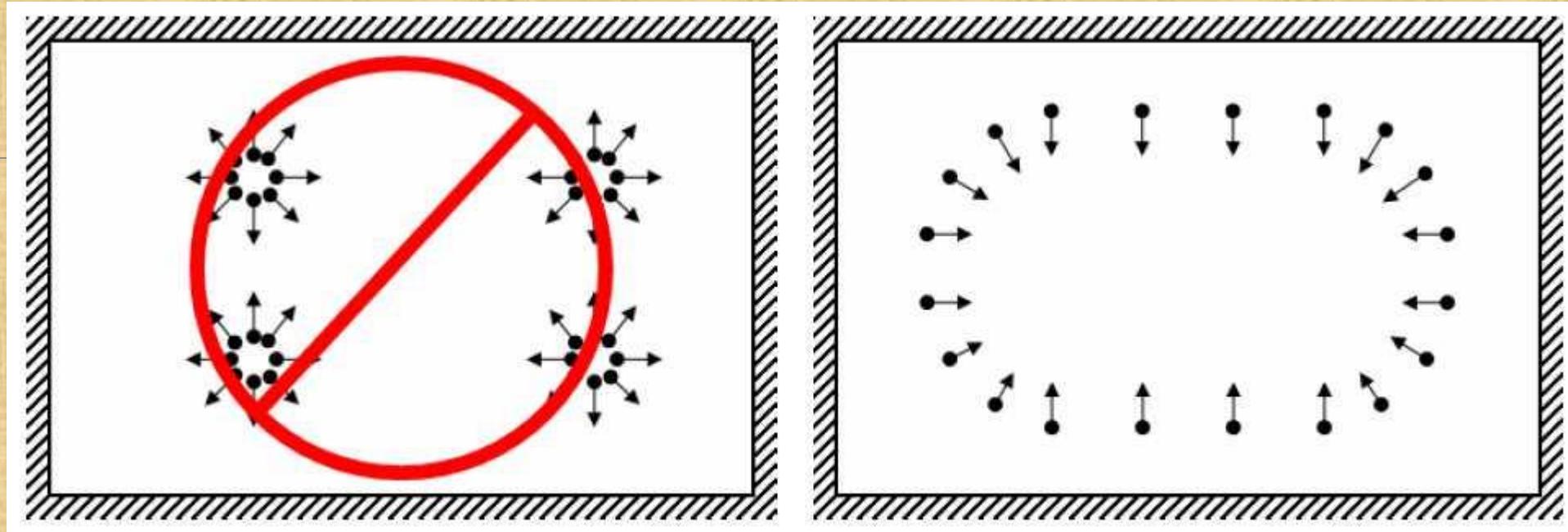
Shuningdek,  
dasturiy  
ta'minotning  
boshqa  
formatlariga  
(ArcGIS, Sketch  
Up ...)

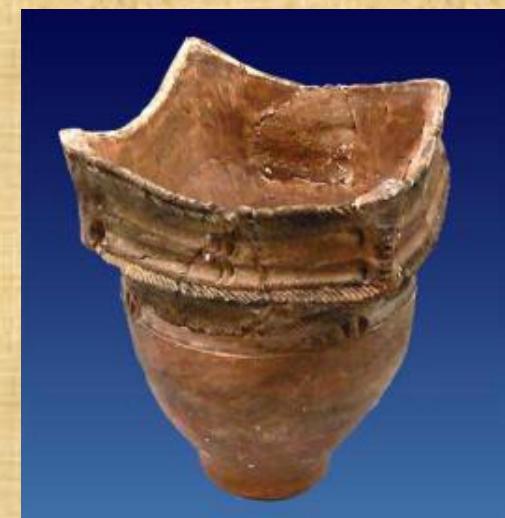
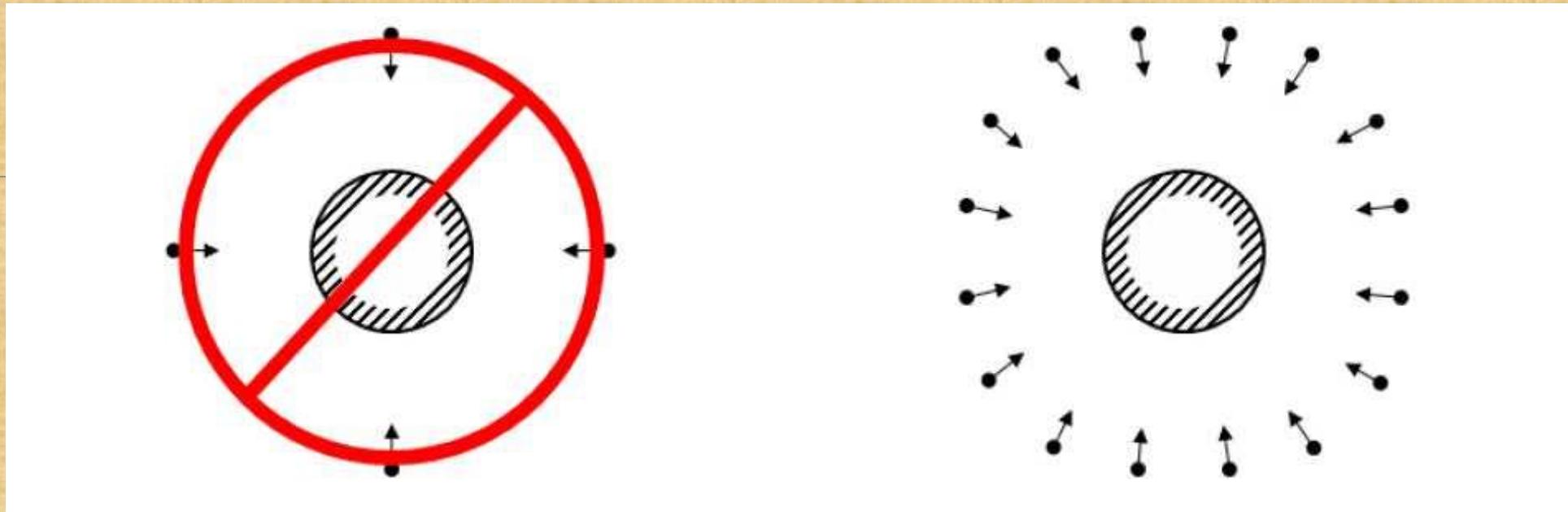


# Suratga olish talabi



# Suratga olish talabi





# Umumiy ishlash asoslari

1. PhotoScan-ga rasmlar yuklash

2. Yuklangan tasvirlarni tekshirish, keraksiz rasmlarni olib tashlash

3. Rasmlarni taxrirlamoq

4. 3D modelini yaratish

5. 3D modelni tahrirlash

6. Natijalarni eksport qilish

Untitled - Agisoft PhotoScan

File Edit View Workflow Tools Photo Help

Workspace

Model

Respective

workspace (1 chunks, 216 cameras)

- Chunk 1 (236 cameras, 10 markers, 1461637 points)
  - Cameras (216, 216 aligned)
  - Markers (10)
    - point1
    - point2
    - point3
    - point4
    - point5
    - point6
    - point7
    - point8
    - point9
    - point10
- Depth Maps (216, Low quality)
- 3D Model (3000000 faces)

Ground Control

Image	Long. err (m)	Lat. err (m)	Alt. err (m)	Error (m)
IMG_0002.JPG	-0.05599	-0.03579	0.003460	0.050462
IMG_0003.JPG	-0.02089	0.01050	0.003395	0.011232
IMG_0004.JPG	-0.00932	-0.03197	0.003338	0.033285
IMG_0005.JPG	-0.00823	-0.01526	0.003204	0.027657
IMG_0006.JPG	0.00491	0.00214	0.003264	0.006321
IMG_0007.JPG	0.02567	0.03201	0.003227	0.043696

Photos

Image	Long. err (m)	Lat. err (m)	Alt. err (m)	Error (m)
IMG_0145.JPG				
IMG_0146.JPG				
IMG_0147.JPG				
IMG_0148.JPG				
IMG_0150.JPG				
IMG_0151.JPG				
IMG_0152.JPG				
IMG_0153.JPG				
IMG_0154.JPG				
IMG_0155.JPG				
IMG_0156.JPG				
IMG_0157.JPG				
IMG_0158.JPG				
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IMG_0163.JPG				
IMG_0164.JPG				
IMG_0165.JPG				
IMG_0166.JPG				
IMG_0151.JPG				
IMG_0158.JPG				
IMG_0170.JPG				
IMG_0171.JPG				
IMG_0172.JPG				
IMG_0173.JPG				
IMG_0174.JPG				
IMG_0175.JPG				
IMG_0176.JPG				
IMG_0177.JPG				

Frame: 1/1

Ground Control Console

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**ЭТИБОРИНГИЗ УЧУН РАХМАТ!**