

# Polyarniy Nikolay



## Work Experience

### - Agisoft

Since April 2016

**Mathematician-Programmer**

[Metashape](#) developer (former PhotoScan, see [showcase](#) and [blog](#)). Currently focused on detailed, fast and scalable polygonal model reconstruction.

Mentor of students internship.

Computer vision, computational geometry, OpenCL and CUDA.

### - Transas

October 2014 - March 2016

**Mathematician-Programmer**

Developed server producing 3D landscape reconstruction and true orthophoto stitching from photos taken by UAV ([presentation](#), [second presentation](#)).

OpenCV, OpenCL, Python, Cython, Ceres-solver.

### - Yandex.Money

February 2014 – October 2014: Software Developer (Java backend)

### - DevExperts

April 2013 – September 2013: Software Developer (Java backend)

## Skills

- **Computer Vision:** structure from motion, multiple view geometry, magic (like [masks transferring](#)). Better than state of the art 3D polygonal surface reconstruction. Fast and occlusion-aware depth maps reconstruction. Dense point cloud classification: ground/road/building/vegetation/car.
- **Computational geometry, CGAL:** computations with absolute accuracy, algorithms and structures like Delaunay triangulation
- **OpenCL, CUDA, OpenGL, WebGL:** GPGPU computations, shaders, ray tracing
- **C++, Python, Java**

## Activities

- **GPGPU course:** developed GPGPU OpenCL [course](#) in CSC. Video recordings available on [youtube](#), tasks available on [github](#).
- **Open-source:** [Out-of-core merge sort](#) with GPU acceleration. [96-bit 3D Morton code](#). OpenCL [modification](#) of EDISON mean shift segmentation. [Implemented](#) Python bindings for OpenCL algorithms in OpenCV. Contributions to OpenCV, PyOpenCL, jupyter qtconsole and others. GPU monitoring in i3pystatus..
- **Hackathons:** four awards on hackatons. Third place on [HackCV](#) (traffic signs recognition), [Science Hackday #2](#) (Startup nomination), [Hackday#36](#) (Autodesk 3D-web nomination), [HackEdu](#) by JetBrains (third place). Participation in [Junction 2016](#), [2017](#).
- **Conferences:** participated in [3DV 2018](#) and [3D-ARCH 2019](#).
- **Magister Ludi:** [PML №239](#) programming teacher. [10-5](#) since september 2018. [9-1](#), [10-1](#), [11-1](#) in winter 2016/2017.
- **Mathematical circle:** PML №239 mathematical circle teacher, SPb school team mentor, mathematical contests volunteer.
- **Programming contests:** contests organization and participation.

## Education

- Computer Science Center
- ITMO University, Computer Technologies
- PML №239, mathematical circle, programming contests

## Contacts

- [PolarNick239@gmail.com](mailto:PolarNick239@gmail.com)
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Last updated: 04.06.2019