

Poliarnyi Nikolai



Work Experience

- Agisoft

Since April 2016

Mathematician-Programmer (Team Lead)

[Metashape](#) developer. Developed detailed, scale-diverse, fast and scalable (out-of-core and cluster-friendly) surface model reconstruction method (published [a paper](#) on [ICCV 2021](#)). Developed depth maps reconstruction method based on the state of the art Patch Match method. 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

- **Photogrammetry course:** developed Photogrammetry [course](#) in Computer Science Club. Video recordings available on [youtube](#), tasks available on [github](#).
- **GPGPU course:** developed GPGPU OpenCL [course](#) in Computer Science Center. 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:** published [a paper](#) on [ICCV 2021](#). Participated in [3DV 2018](#) and [3D-ARCH 2019](#).
- **Magister Ludi:** [PML №239](#) programming teacher.

Education

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

Contacts

- PolarNick239@gmail.com
- PolarNick.ru
- [GitHub](#)
- [LinkedIn](#)



Last updated: 20.08.2021