ANTON EGOROV

Computer Vision and SLAM researcher in Robotics

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 https://github.com/Antonskoltech   in https://www.linkedin.com/in/antegorov/

WORK EXPERIENCE & INTERNSHIPS

Graduate Research Assistance
EECS, Oregon State University

📅 Sep 2021 – present   📍 Corvallis, USA

Research topic: Semantic Scene Segmentation for 3D Point Clouds

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Machine Learning Research Student
Tinkoff Bank Machine Learning project school

📅 Mar 2021 – Mar 2021   📍 Russia, Sochi

Research topic: Development of a Deepfake service - animated image, generated from the source image/video according to the motion and facial expressions of a driving video of another person
- First Order Motion Model for Image Animation implementation
- Add Super-Resolution part based on Efficient Sub-Pixel Convolutional Neural Network

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Research Engineer in SLAM team
Autonomous Transportation Systems Lab, Innopolis University

📅 Nov 2020 – Aug 2021   📍 Innopolis, Russia

- Accurate Semantic Segmentation and 3D Object detection implementation of LiDAR Point Clouds for self-driving vehicle
- Visual road signs tracking and build full HD map with static objects for self-driving car localization
- Robust LiDAR odometry algorithm to build 3D Map and localization for self-driving vehicle
- Teacher Assistant in Introduction to Artificial Intelligent course (Spring 2021)
- Teacher Assistant in Mobile Robotics and Autonomous Driving course (Fall 2020)

R&D Intern
SMART VIEWING

📅 Aug 2020 – Nov 2020   📍 London, United Kingdom

Research topic:
- Remote working on panoramic segmentation which combines semantics segmentation like tangent images with instance segmentation

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R&D Intern in SLAM team (remote work from March)
Robotics Institute, Carnegie Mellon University

📅 Aug 2019 – Jul 2020   📍 Pittsburgh, PA, USA

Research topics:
- SphereVLAD: Orientation-invariant 3D Place Recognition via Spherical Harmonics in 3D LIDAR-based SLAM algorithm
- SeqSphereVLAD: Sequence Matching Enhanced Orientation-invariant Place Recognition
- Fast Sequence-matching Enhanced orientation-invariant 3D Place Recognition

EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science (Computer Vision) GPA: _ out of _
EECS, Oregon State University

📅 Sep 2021 – present   📍 Corvallis, USA
Adviser: Prof. Fuxin Li

Master's in Information Systems and Technology, GPA: 5 out of 5
Space and Engineering Systems, Skoltech

📅 Sep 2018 – Jun 2020 📍 Moscow, Russia
Adviser: Prof. Dzmitry Tsetserukou
co-Adviser: Prof. Howie Choset, CMU

Bachelor's in Electronics and nano-electronics, GPA: 5 out of 5
Industrial electronics (Power electronics), Chuvash State University

📅 Sep 2014 – Jul 2018 📍 Cheboksary, Russia

PUBLICATIONS

- Peng Yin, Fuying Wang, **Anton Egorov**, Ji Zhang. "Fast Sequence-matching Enhanced orientation-invariant 3D Place Recognition," in *Proc. IEEE Transactions on Industrial Electronics journal (TIE)*, 2021. Accessed: Feb. 2021. [Online]. Available: doi: `10.1109/TIE.2021.3057025`, `https://ieeexplore.ieee.org/abstract/document/9351776`
- Peng Yin, Fuying Wang, **Anton Egorov**, Ji-afan Hou, Ji Zhang, Howie Choset. "SeqSphereVLAD: Sequence Matching Enhanced Orientation-invariant Place Recognition," in *Proc. International Conference on Intelligent Robots and Systems (IROS 2020)*, Las Vegas, NV, USA, 2020. Accessed: Oct. 2020. [Online]. Available: `https://ras.papercept.net/proceedings/IROS20/0583.pdf`
- Grigoriy A. Yashin, **Anton Egorov**, Zhanibek Darush, Nikolay Zherdev, and Dzmitry Tsetserukou. "LocoGear: Locomotion Analysis of Robotic Landing Gear for Multicopters,"in *IEEE Journal on Miniaturization for Air and Space Systems (J-MASS)*, vol. 1, issue 2, pp.138-147. Accessed: Sep. 2020. [Online]. Available: doi: `10.1109/JMASS.2020.3015525`, `https://ieeexplore.ieee.org/document/9163320/authors#authors`

- PSE-Match: A Viewpoint-free Place Recognition Method with Parallel Semantic Embedding

Adviser: Professor Howie Choset, Postdoc Peng Yin

Summer Intern Student
Intelligent Space Robotic Lab, Skoltech

📅 Jun 2019 – Aug 2019   📍 Moscow, Russia

LocoGear: Locomotion Analysis of Robotic Landing Gear for Multi-copters
- Prepare reliable and stable hardware for legs and flying systems
- Set up and calibrate the robot
- Perform real-time simulation on a quadruped mobile robot

Adviser: Professor Dzmitry Tsetserukou, Dr. Grigoriy Yashin

Electrical Engineer Team Leader for Eurobot competition
Intelligent Space Robotics Lab, Skoltech

📅 Oct 2018 – Jun 2019   📍 Moscow, Russia

Development of electronics hardware system of two autonomous mobile robots-2nd place in the World robotic competitions "EurobotOPEN" Finals in France
- Designing a printed circuit board for control Maxon motors, dinamixlels, proximity sensors
- The Robot power supply system
- Communicate with on-board PC via UART interface using STM32

Adviser: Prof. Dzmitry Tsetserukou

Summer Intern Student in the Institute for Solar Fuels
Helmholtz-Zentrum Berlin für Materialien und Energie (HZB)

📅 Jul 2018 – Sep 2018   📍 Berlin, Germany

Research topic:
- Optimizing buried junction cubic π-SnS photocathodes for water splitting (using AA-CVD, Magnetron sputtering, XRD, PEC and SEM analysis)-the goal is to fabricate a solar water splitting device that produces hydrogen

Adviser: Dr. Ibbi Ahmed

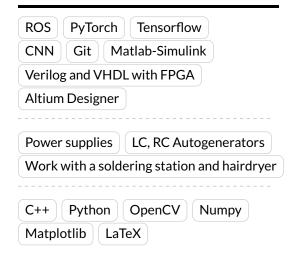## Electrical Engineer
Relematika

📅 Jul 2016 – Sep 2018   📍 Cheboksary, Russia

- Developing analog electronic microprocessor parts for protection of power lines
- Experience in research of the complete cycle of development of analog electronic devices for the electric power engineering industry
- Experience in research and development of output impulse formation circuits of definite duration of output signal for the calibration device and holding tests of the complex protection from arc faults
- Development of a device: « DC control relay» for complex protection of power lines
- Developing of a fiber-optic sensor for detecting a short circuit in substations

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- Peng Yin, Ziyue Feng, Lingyun Xu, **Anton Egorov** and Bing Li. "PSE-Match: A Viewpoint-free Place Recognition Method with Parallel Semantic Embedding," in *Proc. IEEE Transactions on Intelligent Transportation Systems journal (T-ITS)*, 2020, *under review.*

SKILLS

ROS   PyTorch   Tensorflow
CNN   Git   Matlab-Simulink
Verilog and VHDL with FPGA
Altium Designer

Power supplies   LC, RC Autogenerators
Work with a soldering station and hairdryer

C++   Python   OpenCV   Numpy
Matplotlib   LaTeX

LANGUAGES

Russian (native)   ●●●●●
English (C1 level in TOEFL ITP)   ●●●●○

HONORS & AWARDS

- Acceptance for Phd Computer Science program at Oregon State University, (USA,2021)
- Best Project Award in Tinkoff Bank ML project school, (Russia,2021)
- Skoltech's academic mobility grant (Russia,2019)
- 2nd place in the world robotic competitions "Eurobot OPEN" Finals (France,2019)
  [Online]. Available: `https://truestory.skoltech.ru/reset`
- Winner of the National stage "Eurobot OPEN" (Russia,2019)
- Best Design Award in Robotics course (Skoltech,2019)
- Best Project Award in Control and Systems Engineering course (Skoltech,2019)
- HZB 2018 Undergraduate Fellowship (Berlin, Germany)
  [Online]. Available: `https://www.helmholtz-berlin.de/jobskarriere/sommerstudenten/index_en.html#`
- Participant of the 19th World Festival of Youth and Students (Russia,2018)

Electrical Engineer

Sirius Educational Center

📅 Jun 2017 – Aug 2017   📍 Sochi, Russia

- Project development using 3D printers and lasers
- Developing of Power Supplies
- Ability to solder SMT PCB components using a microscope or reflow equipment
- Repairing PCBs and building cable assemblies with reliability and ruggedness in mind

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