



Alexey Abramov

Personal details

Date and place of birth 17.05.1985 in Moscow, Russia
Citizenship Russian Federation
Residential status permanent German residence permit
Marital status single
Home page <https://salzis.wordpress.com/>
GitHub <https://github.com/aabramovrepo>

Languages

Russian native speaker
German fluent
English fluent

Professional career

7/2022 - present **Senior software engineer** / Argo AI, Munich, Germany
Project Autonomy: self-driving cars
Topic ML / AI for prediction
1/2021 - 6/2022 **AI / CV engineer** / Continental ADC, Munich, Germany
Project Reference Data for Advanced Driver Assistance Systems
5/2015 - 12/2020 **Development engineer environment model** / Continental Teves AG, Frankfurt am Main / Munich, Germany
Projects Automated Driving, Cruising Chauffeur
Topics Online road modeling using sensor fusion
Lane perception with a high-resolution camera
Deep learning for visual recognition: lane detection, enhanced environment modeling

5/2013 - 4/2015 **Development engineer environment model** / Bertrandt Ingenieurbüro GmbH, Munich, Germany

Project Automated Driving (BMW & Continental)

Topics Lane perception with a high-resolution camera
Enhanced environment modeling

7/2012 - 4/2013 **Research assistant / PostDoc** at the Georg-August Universität Göttingen, Germany

Area of research Computer vision and machine learning

Topics Video segmentation
Modeling leaf growth using stereo image sequences

4/2008 - 7/2012 **Research assistant / PhD Student** at the Georg-August Universität Göttingen, Germany

Area of research Computer vision and machine learning

Topics Video segmentation, object recognition, object tracking

Computer skills

Operating systems Linux (Ubuntu + i3), Windows

Development Python, C++11-17, Nvidia CUDA

Version control Git, GitHub, DVC

Usage OpenCV, PyTorch, TensorFlow, Caffe, Point Cloud Library (PCL), Boost, OpenMP, Qt, ROS, NumPy, SciPy, Matplotlib, scikit-learn, pandas, pytest

Open source

2020 image-statistics-matching

<https://github.com/continental/image-statistics-matching>

Dissertation

4/2008 - 7/2012 **PhD in Computer Science**

Georg-August Universität Göttingen, Germany

Supervisors Prof. Dr. Florentin Wörgötter, Dr. Babette Dellen

Doctoral thesis "Compression of visual data into symbol-like descriptors in terms of a cognitive real-time vision system" (Final grade: magna cum laude)

Studies

9/2002 - 2/2008 **MSc and BA in Computer Science**

National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russia

Graduation graduate engineer

Field Computers, complex computer operations, systems and networks

Specialization High-performance computer systems and technologies
Topic of the diploma thesis "Detection and tracking of moving objects in the camera field of view"
(Final grade: excellent)

Participation in EU research projects

IntellAct Intelligent Observation and Execution of Actions and Manipulations
Xperience Robots bootstrapped through Learning from Experience
GARNICS Gardening with a Cognitive System
PACO-PLUS Perception, Action and Cognition through Learning of Object-Action Complexes

Review of scientific papers

IEEE International Conference on Robotics and Automation (ICRA)
IEEE Transactions on Image Processing

Research / development experience

Computer vision and image processing
Artificial intelligence and deep learning for object recognition
Autonomous driving
Camera-based automotive systems
Camera-based road marking and lane detection
Image / video segmentation and object tracking
Stereo vision
Real-time computer vision systems
Parallel computing and architectures
Video surveillance systems

List of publications

Conferences (selected)

Abramov, A.[§], Bayer, C.[§], Heller, C.[§] (§ - equal contribution) Keep it Simple: Image Statistics Matching for Domain Adaptation. Scalability in Autonomous Driving, CVPR workshop, Seattle, USA, June 16-18, 2020.

Abramov, A.[§], Bayer, C.[§], Heller, C.[§], Loy, C.[§] (§ - equal contribution) A Flexible Modeling Approach for Robust Multi-Lane Road Estimation. IEEE Intelligent Vehicles Symposium (IV), Redondo Beach, CA, USA, June 11-14, 2017.

Abramov, A.[§], Bayer, C.[§], Heller, C.[§], Loy, C.[§] (§ - equal contribution) Multi-Lane Perception Using Feature Fusion Based on GraphSLAM. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Daejeon, Korea, October 9-14, 2016.

Papon, J., Abramov, A., Schoeler, M., Wörgötter, F. Voxel Cloud Connectivity Segmentation - Supervoxels for Point Clouds. Computer Vision and Pattern Recognition (CVPR), Portland, USA, June 23-28, 2013.

Papon, J., Abramov, A., Wörgötter, F. Occlusion Handling in Video Segmentation via Predictive Feedback. ARTEMIS workshop in conjunction with European Conference on Computer Vision (ECCV), Firenze, Italy, October 13, 2012.

Abramov A., Papon, J., Pauwels, K., Wörgötter, F., Dellen, B. Depth-supported real-time video segmentation with the Kinect. IEEE workshop on the Applications of Computer Vision (WACV 2012), Breckenridge, Colorado, USA, January 9-11, 2012.

Abramov A., Aksoy, E.E., Dörr, J., Pauwels, K., Wörgötter, F., Dellen, B. 3D Semantic Representation of Actions from efficient stereo-image-sequence segmentation on GPUs. Fifth International Symposium on 3D Data Processing, Visualization and Transmission (3DPVT 2010), Paris, France, May 17-20, 2010.

Aksoy, E.E., Abramov, A., Wörgötter, F., Dellen, B. Categorizing Object-Action Relations from Semantic Scene Graphs. IEEE International Conference on Robotics and Automation (ICRA 2010), Alaska, USA, May 3-8, 2010.

Journals

Aksoy, E.E., Abramov A., Wörgötter, F., Scharr, H., Fischbach, A., Dellen, B. Modeling leaf growth of rosette plants using infrared stereo image sequences. Computers and Electronics in Agriculture, 110, 78-90, 2015.

Abramov, A., Pauwels K., Papon, J., Wörgötter, F., Dellen, B. Real-time Segmentation of Stereo Videos on a Portable System with a Mobile GPU. IEEE Transactions on Circuits and Systems for Video Technology, 22(9), 1292-1305, 2012.

Aksoy, E.E., Abramov A., Dörr, J., Ning, K., Dellen, B., Wörgötter, F. Learning the semantics of object-action relations by observation. International Journal of Robotics Research (IJRR), Special Issue on Semantic Perception for Robots in Indoor Environments, 30:1229-1249, 2011.

Talks

- 12/2019 **Advanced Environment Modeling for Assisted and Automated Driving**, Computer Vision and Deep Learning for Autonomous Driving seminar (invited talk), Technical University of Munich.
- 4/2018 **Advanced Environment Modeling for Autonomous Driving**, Walt Disney Imagineering, Pasadena (Los Angeles), USA.
- 10/2017 **AI Driven Environment Modeling for Autonomous Driving on Nvidia Drive PX2**, NVIDIA GPU Technology Conference Europe, Munich, Germany.
- 7/2016 **Perception of Multiple Lanes using Data Fusion**, MIT Lincoln Laboratory Beaver Works Center (summer program), Boston, Massachusetts, USA.
- 5/2012 **Real-Time Modular Cognitive Vision System**, NVIDIA GPU Technology Conference (GTC), San Jose, California, USA.

Hobbies

Bicycle, jogging, swimming, skiing, hiking, traveling
Football, foosball
Reading, art