

# Stereovision for Driving Assistance Systems and Autonomous Driving

## Books / chapters

S. Nedevschi, T. Marita, R. Danescu, F. Oniga, R. Brehar, I. Giosan, S. Bota, A. Ciurte, A. Vatavu, Image Processing - Laboratory Guide, UT Press, 2016,

R. Danescu, A. Petrovai, R. Itu, S. Nedevschi, Generic Obstacle Detection for Mobile Devices Using a Dynamic Intermediate Representation, book chapter in Volume 427 of the series Advances in Intelligent Systems and Computing (Proceedings of the Second International Afro-European Conference for Industrial Advancement AECIA 2015), published by Springer Berlin Heidelberg, 2016, pp. 629-639

S. Nedevschi, T. Marita, R. Danescu, F. Oniga, R. Brehar, I. Giosan, C. Vicas, Procesarea imaginilor. Indrumator de laborator, U.T. PRESS, Cluj-Napoca, 2013, ISBN 978-973-662-796-5, 102 pagini

S. Nedevschi, R. Danescu, F. Oniga, T. Marita, Tehnici de viziune artificiala in conducerea automata a autovehiculelor, U.T. PRESS, Cluj-Napoca, 2012, ISBN 978-973-662-787-3, 203 pagini.

A. Vatavu, S. Nedevschi, F. Oniga, " [Real time environment representation in driving scenarios based on object delimiters extraction](#)", Lecture Notes in Electrical Engineering 85 LNEE, Springer, pp. 255-267, 2011.

S. Nedevschi, T. Marita, R. Danescu, F. Oniga, S. Bota, I. Haller, C. Pantilie, M. Drulea, C. Golban, " [On Board 6D Visual Sensors for Intersection Driving Assistance System](#)", capitol de carte in "Advanced Microsystems for Automotive Applications 2010: Smart Systems for Green Cars and Safe Mobility", editors G. Meyer, J. Valldorf, W. Gessner, published by Springer, pages 253-264.

S. Nedevschi, R. Danescu, T. Marita, F. Oniga, C. Pocol, S. Bota, M.-M. Meinecke, M. A. Obojski, " [Stereovision-Based Sensor for Intersection Assistance](#)", capitol de carte in "Advanced Microsystems for Automotive Applications 2009: Smart Systems for Safety, Sustainability and Comfort", editors G. Meyer, J. Valldorf, W. Gessner, published by Springer, pp.129-164.

S. Nedevschi, R. Danescu, T. Marita, F. Oniga, C. Pocol, S. Bota and C. Vancea, " [A Sensor for Urban Driving Assistance Systems Based on Dense Stereovision](#)" capitol de carte in "Stereo Vision" editor A. Bhatti, published by InTech Education and Publishing, Vienna, 2008, pages 235-272

## Papers

### 2022

A. Petrovai, S. Nedevschi, " [Exploiting Pseudo Labels in a Self-Supervised Learning Framework for Improved Monocular Depth Estimation](#)", 2022 Conference on Computer Vision and Pattern Recognition (CVPR). 19-24 June 2022, New Orleans, SUA

V.C. Miclea, S. Nedevschi, " [Monocular Depth Estimation With Improved Long-Range Accuracy for UAV Environment Perception](#)", IEEE Transactions on Geoscience and Remote Sensing, Vol. 60, AN: 5602215, 2022, DOI: 10.1109/TGRS.2021.3060513.

R. Danescu, R. Itu, M.P. Muresan, A. Rednic, V. Turcu, " [SST Anywhere-A Portable Solution for Wide Field Low Earth Orbit Surveillance](#)", Remote Sensing, Vol 14, Issue 8, AN 1905, APR 2022

A. Petrovai, S. Nedevschi, " [Semantic Cameras for 360-degree Environment Perception in Automated Urban Parking and Driving](#)", IEEE Transactions on Intelligent Transportation Systems, Early Access, MAR 2022, DOI:10.1109/ITITS.2022.3156794.

A. Petrovai, S. Nedevschi, " [Fast Panoptic Segmentation with Soft Attention Embedding](#)", SENSORS, Vol. 22, Issue 3, AN: 783, FEB 2022, DOI:10.3390/s22030783.

A. Petrovai, S. Nedevschi, " [Time-Space Transformers for Video Panoptic Segmentation](#)", 2022 IEEE Winter Conference on Applications of Computer Vision (WACV 2022), 4-8 January 2022, Waikoloa, Hawaii, USA.

### 2021

M.P. Muresan, S. Nedevschi, R. Danescu, " [Robust Data Association using Fusion of Data-Driven and Engineered Features for Real Time Pedestrian Tracking in Thermal Images](#)", SENSORS, Vol. 21, Issue 23, AN 8005, NOV 2021, DOI: 10.3390/s21238005.

M. Dulau, F. Oniga, " [Obstacle Detection Using a Facet-Based Representation from 3-D LiDAR Measurements](#)", SENSORS, Vol. 21, Issue 20, AN 6861, OCT 2021,

R. Brehar, M.P. Muresan, M. Tiberiu, C. Vancea, N. Mihai, S. Nedevschi, " [Pedestrian Street-Cross Action Recognition in Monocular Far Infrared Sequences](#)", IEEE ACCESS, Vol. 9, pp. 74302-74324, JUN 2021, DOI:10.1109/ACCESS.2021.3080822.

AS. Darabant, D. Borza, D. Radu, " [Recognizing Human Races through Machine Learning-A Multi-Network, Multi-Features Study](#)", MATHEMATICS, Vol. 9, Issue 2, AN 195, JAN 2021.

R. Brehar, T. Marita, M. Negru, S. Nedevschi, " [Pedestrian identification in infrared and visible images based on pose keypoints matching](#)", Journal of Physics: Conference Series 1780(1), 012033, 2021

B.C.Z. Blaga, S. Nedevschi, " [Weakly Supervised Semantic Segmentation Learning on UAV Video Sequences](#)" 29th European Signal Processing Conference, EUSIPCO 2021, Dublin, Ireland, 23-27 August 2021

R. Brehar, C. Vancea, M.P. Murean, S. Nedevschi, R. Danescu, "Pose Based Pedestrian Street Cross Action Recognition in Infrared Images", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

S. Deac, C. Vancea, S. Nedevschi, "MVGNet: 3D object detection using multi-volume grid representation in urban traffic scenarios", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

B. Maxim, S. Nedevschi, "OccTransformers: Learning occupancy using attention", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

M.P. Muresan, R. Marchis, S. Nedevschi, R. Danescu "Stereo and Mono Depth Estimation Fusion for an Improved and Fault Tolerant 3D Reconstruction", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

B. Maxim, S. Nedevschi, "A survey on the current state of the art on deep learning 3D reconstruction", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

H. Florea, V.C. Miclea, S. Nedevschi, "WildUAV: Monocular UAV Dataset for Depth Estimation Tasks", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

C.C. Golban, C.P. Cobârzan, S. Nedevschi, "Visual Odometry Drift Reduction Based on LiDAR Point Clouds Alignment", in Proceedings of 17th 2021 IEEE International Conference Intelligent Computer Communication and Processing (ICCP 2021).

## 2020

R. Brehar, D. Mitrea, F. Vancea, T. Marita, S. Nedevschi, M. Lupsor, M. Rotaru, R. Badea, Comparison of Deep-Learning and Conventional Machine-Learning Methods for the Automatic Recognition of the Hepatocellular Carcinoma Areas from Ultrasound Images, SENSORS, Vol. 20, Issue 11, article number 3085, JUN 2020.

M.P. Muresan, I. Giosan, S. Nedevschi, [Stabilization and Validation of 3D Object Position Using Multimodal Sensor Fusion and Semantic Segmentation](#) SENSORS, Vol. 20, Issue 4, article number 1110, FEB 2020.

R. Itu, R. Danescu, " [A Self-Calibrating Probabilistic Framework for 3D Environment Perception Using Monocular Vision](#)", SENSORS, Vol. 20, Issue 5, AN 1280, MAR 2020,

VC. Miclea, S. Nedevschi, [Real-Time Semantic Segmentation-Based Stereo Reconstruction](#) IEEE Transactions on Intelligent Transportation Systems, Vol. 21, Issue 4, pp. 1514-1524, APR 2020.

A Petrovai, S. Nedevschi, Real-Time Panoptic Segmentation with Prototype Masks for Automated Driving, Proceedings of 2020 IEEE Intelligent Vehicles Symposium (IV2020), October 19–November 13, 2020, Las Vegas, SUA.

VC. Miclea, S. Nedevschi, A unified method for improving long-range accuracy of stereo and monocular depth estimation algorithms, Proceedings of 2020 IEEE Intelligent Vehicles Symposium (IV2020), October 19–November 13, 2020, Las Vegas, SUA.

VC. Miclea, S. Nedevschi, Semi-Global Optimization for Classification-Based Monocular Depth Estimation, Proceedings of 2020 IEEE International Conference on Intelligent Robots and Systems (IROS2020), October 25-29, 2020, Las Vegas, SUA

M. P. Muresan, A. R. Barbura, S. Nedevschi, Teeth Detection and Dental Problem Classification in Panoramic X-Ray Images using Deep Learning and Image Processing Techniques, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

B. Maxim, S. Nedevschi, Efficient spatio-temporal point convolution, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania, pp377-382.

D. S. Bacea, D.A. Mitrea, S. Nedevschi, R. Badea, Adversarial Graph Learning and Deep Learning Techniques for improving diagnosis within CT and Ultrasound images, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

B. C. Z. Blaga, S. Nedevschi, A Critical Evaluation of Aerial Data Datasets for Semantic Segmentation, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

R. Beche, S. Nedevschi, Narrowing the semantic gap between real and synthetic data, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

V. Lup, S. Nedevschi, Video Semantic Segmentation leveraging Dense Optical Flow, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

S. Baci, F. Oniga, S. Nedevschi, Semantic 3D Obstacle Detection Using an Enhanced Probabilistic Voxel Octree Representation, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

C. Golban, P. Cobarzan, S. Nedevschi, A comparison study on replacing stereo disparity with LiDAR in visual odometry methods, Proceedings of 2020 IEEE International Conference on Intelligent Computer Communication and Processing (ICCP2020), September 3-5, 2020, Cluj-Napoca, Romania.

## 2019

A. Petrovai, S. Nedevschi, ["Multi-Task Network for Panoptic Segmentation in Automated Driving"](#), Proceeding of 2019 IEEE Intelligent Transportation Systems Conference (ITSC), Auckland, New Zealand, 26-30 October, 2019, pp. 2394-2401.

S.E.C. Deac, I. Giosan, S. Nedevschi, " [Curb Detection in Urban Traffic Scenarios Using LiDARs Point Cloud and Semantically Segmented Color Images](#)", Proceeding of 2019 IEEE Intelligent Transportation Systems Conference (ITSC), Auckland, New Zealand, 26-30 October, 2019, pp. 3433-3440.

V. Miclea, S. Nedevschi, ["Real-Time Semantic Segmentation-Based Stereo Reconstruction"](#), IEEE Transactions on Intelligent Transportation Systems (Early Access), pp. 1-11, 2019, DOI: 10.1109/ITIS.2019.2913883.

A. Petrovai, S. Nedevschi, ["Efficient instance and semantic segmentation for automated driving"](#), Proceeding of 2019 IEEE Intelligent Vehicles Symposium (IV 2019), Paris; France; 9 - 12 June, 2019, pp. 2575-2581.

D. D. Mitrea, R. Brehar, P. Mitrea, S. Nedevschi, M. Platon, R. Badea, "The role of convolutional neural networks in the automatic recognition of the hepatocellular carcinoma, based on ultrasound images", Proceeding of 6th International Conference on Advancements of Medicine and Health Care through Technology, MEDITECH 2018; Cluj-Napoca; Romania; 17-20 October 2018, IFMBE Proceedings, volume 71, 2019, pp. 169-175.

M. P. Muresan, S. Nedevschi, Multi-Object tracking of 3D cuboids using aggregated features, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 11-18.

A. S. Vaida, S. Nedevschi, Automatic Extrinsic Calibration of LIDAR and Monocular Camera Images, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 117-124.

R. Brehar, F. Vancea, T. Marita, C. Vancea, S. Nedevschi, Object Detection in Monocular Infrared Images Using Classification – Regression Deep Learning Architectures, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 207-212.

A. Baraian, S. Nedevschi, Improved 3D Perception based on Color Monocular Camera for MAV exploiting Image Semantic Segmentation, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 295-301.

B. C. Z. Blaga, S. Nedevschi, Semantic Segmentation Learning for Autonomous UAVs using Simulators and Real Data, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 303-310.

M. P. Muresan, P. A. Szabo, S. Nedevschi, Dot Matrix OCR for Bottle Validity Inspection, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 395-401.

F. Vancea, D. Mitrea, S. Nedevschi, M. Rotaru, H. Stefanescu, R. Badea, Hepatocellular Carcinoma Segmentation within Ultrasound Images using Convolutional Neural Networks, Proceeding of 2019 IEEE Intelligent Computer Communication and Processing (ICCP), 2019, pp. 483-490.

## 2018

L. Sabattini, M. Aikio, P. Beinschob, M. Boehning, E. Cardarelli, V. Digani, A. Krengel, M. Magnani, Sz. Mandici, F. Oleari, Ch. Reinke, Davide, C. Stimming, R. Varga, A. Vataavu, S. C. Lopez, C. Fantuzzi, A. Mayra, S. Nedevschi, C. Secchi, K. Fuerstenberg, "The PAN-Robots Project: Advanced Automated Guided Vehicle Systems for Industrial Logistics", IEEE ROBOTICS and AUTOMATION MAGAZINE, pp. 55-64, MARCH 2018.

A. D. Costea, A. Petrovai, S. Nedevschi, "[Fusion Scheme for Semantic and Instance-Level Segmentation](#)", Proceedings of 2018 IEEE Intelligent Transportation Systems Conference (ITSC), Maui, Hawaii, USA, November 4-7, 2018, pp. 3469-3475.

V. Miclea, S. Nedevschi, L. Miclea, "[Real-Time Stereo Reconstruction Failure Detection and Correction Using Deep Learning](#)", Proceedings of 2018 IEEE Intelligent Transportation Systems Conference (ITSC), Maui, Hawaii, USA, November 4-7, 2018, pp. 1095-1102.

V. Miclea, S. Nedevschi, "Real-Time Semantic Segmentation-Based Depth Up Sampling Using Deep Learning", Proceedings of 2018 IEEE Intelligent Vehicles Symposium (IV), Changzhou, China, June 26-30, 2018, pp. 300-306.

D. Mitrea, S. Nedevschi, R. Badea, "Automatic Recognition of the Hepatocellular Carcinoma from Ultrasound Images using Complex Textural Microstructure Co-Occurrence Matrices (CTMCM)", Proceedings of 7th International Conference on Pattern Recognition Applications and Methods (ICPRAM), Funchal, PORTUGAL, January 16-18, 2018, pp. 178-189.

F. Oniga and S. Nedevschi, "[A Fast RANSAC Based Approach for Computing the Orientation of Obstacles in Traffic Scenes](#)", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 209-214.

M. P. Muresan, S. Nedevschi, "Multimodal sparse LIDAR object tracking in clutter", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 215-222.

H. Florea, R. Varga, S. Nedevschi, "[Environment Perception Architecture using Images and 3D Data](#)", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 223-228.

F. I. Vancea, S. Nedevschi, "Semantic information based vehicle relative orientation and taillight detection", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 259-264.

S. E. C. Goga, S. Nedevschi, "[Fusing semantic labeled camera images and 3D LiDAR data for the detection of urban curbs](#)", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 301-308.

R. Brehar, F. Vancea, T. Marita, S. Nedevschi, "A Deep Learning Approach For Pedestrian Segmentation In Infrared Images", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 253-258.

B. C. Z. Blaga, S. Nedevschi, "A Method for Automatic Pole Detection from Urban Video Scenes using Stereo Vision", Proceedings of 2018 14th IEEE International Conference on Intelligent Computer Communication and Processing (ICCP), Cluj-Napoca, Romania, September 7-9, 2018, pp. 293-300.

## 2017

A. Costea, S. Nedevschi, "[Traffic Scene Segmentation based on Boosting over Multimodal Low, Intermediate and High Order Multi-range Channel Features](#)", in Proceedings of 2017 IEEE Intelligent Vehicles Symposium (IV) June 11-14, 2017, Redondo Beach, CA, USA, pp. 74-81.

A. Costea, R. Varga, S. Nedevschi, "[Fast Boosting Based Detection Using Scale Invariant Multimodal Multiresolution Filtered Features](#)", 2017 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 993-1002, 2017

A. Petrovai, AD Costea, S. Nedevschi, "[Semi-automatic image annotation of street scenes](#)", 2017 IEEE Intelligent Vehicles Symposium (IV), 448-455.

A. Costea, S. Nedevschi, "[Traffic scene segmentation based on boosting over multimodal low, intermediate and high order multi-range channel features](#)", 2017 IEEE Intelligent Vehicles Symposium (IV), 74-81.

VC Miclea, S. Nedevschi, "[Semantic segmentation-based stereo reconstruction with statistically improved long range accuracy](#)", 2017 IEEE Intelligent Vehicles Symposium (IV), 1795-1802.

R. Varga, AD Costea, H. Florea, I. Giosan, S. Nedevschi, "[Super-sensor for 360-degree Environment Perception: Point Cloud Segmentation Using Image Features](#)", 2017 IEEE Intelligent transportation Systems Conference (ITSC), Yokohama, best student paper award.

Z. Blaga, S. Nedevschi, "[Online Cross-Calibration of Camera and LIDAR](#)", 2017 IEEE Intelligent Computer Communication and Processing.

S. Goga, S. Nedevschi, "[An approach for segmenting 3D LiDAR data using multi-volume grid structures](#)", 2017 IEEE Intelligent Computer Communication and Processing.

M. P. Muresan, S. Nedevschi, Ion Giosan, "[Real-Time Object Detection Using a Sparse 4-Layer LIDAR](#)", 2017 IEEE Intelligent Computer Communication and Processing.

## 2016

D. Mitrea, S. Nedevschi, M. Abrudean, M. Lupsor-Platon, and R. Badea, "The Role of the Textural Microstructure Co-occurrence Matrices in the Automatic Detection of the Cirrhosis Severity Grades from Ultrasound Images", Control Engineering and Applied Informatics, vol. 18, pp. 96-106, Dec 2016.

D. Mitrea, S. Nedevschi, R. Badea, "The role of the complex extended textural microstructure co-occurrence matrix in the unsupervised detection of the HCC evolution phases, based on ultrasound images", in Proceedings of 5th International Conference on Pattern Recognition Applications and Methods (ICPRAM 2016), Rome, Italy, 24-26 February, 2016, pp. 698-705

R. Varga, S. Nedevschi, "Robust Pallet Detection for Automated Logistics Operations", in Proceedings of 11th Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, Roma, Italy, 27-29 February, 2016, pp. 470-477.

I. Giosan, S. Nedevschi, "Superpixels in Pedestrian Detection from Stereo Images in Urban Traffic Scenarios", in Proceedings of 11th Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications, Roma, Italy, 27-29 February, 2016, pp. 501-508.

C. Vancea, V. Miclea, S. Nedevschi, "Improving stereo reconstruction by sub-pixel correction using histogram matching", Proceedings of 2016 IEEE IV Symposium, Goteborg, Sweden, 19-22 June, 2016, pp. 335 - 341.

A. Costea, S. Nedevschi, "Fast traffic scene segmentation using multi-range features from multi-resolution filtered and spatial context channels", Proceedings of 2016 IEEE IV Symposium, Goteborg, Sweden, 19-22 June, 2016, pp. 328-334.

A. Costea, S. Nedevschi, "Semantic Channels for Fast Pedestrian Detection", Proceedings of CVPR 2016, Las Vegas, USA, June, 2016, pp. 2360-2368.

C. Decean, S. Nedevschi, "Stereoscopic Scene Flow estimation with global motion prior", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 199 - 206.

B. Coseriu, M. Negru, S. Nedevschi, "Contrast Restoration of Foggy Images on the ZYNQ Embedded Platform", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9

September 2016, pp. 207 - 214.

C. Vancea, S. Nedevschi, "FPGA-based stereo vision hardware for generating dense disparity maps", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 225 - 232.

V. Miclea, S. Nedevschi, "Optimizing Census-based Semi Global Matching by Genetic Algorithms", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 193 - 198.

A. Marginean, A. Petrovai, R. Slavescu, M. Negru, S. Nedevschi, "Enhancing Digital Maps to Support Reasoning on Traffic Sign Compliance", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 277 - 284.

A. Petrovai, R. Danescu, M. Negru, C. Vancea, S. Nedevschi, "A Stereovision based Rear-End Collision Warning System on Mobile Devices", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 285 - 292.

M. Muresan, S. Nedevschi, R. Danescu, "Patch warping and local constraints for improved block matching stereo correspondence", Proceedings of 2016 IEEE ICCP, Cluj-Napoca, Romania, 7-9 September 2016, pp. 321 - 327.

S. Mandici, S. Nedevschi, "Real-Time Multi-Resolution Digital Elevation Map Creation using the Sensor Model of a Stereovision Sensor", Proceeding of 2016 IEEE ITSC, Rio De Janeiro, Brazil, 1- 4 November, 2016, pp. 608-615.

## 2015

C. Vicas, S. Nedevschi, "Detecting Curvilinear Features Using Structure Tensors", IEEE Transactions on Image Processing, vol. 24, no. 11, pp. 3874 – 3887, NOV 2015.  
M. Negru, S. Nedevschi, R. I. Peter, "Exponential Contrast Restoration in Fog Conditions for Driving Assistance, IEEE Transactions on Intelligent Transportation Systems, Vol. 16, No. 4, pp. 2257-2268, AUG 2015.

A. Ciurte, S. Nedevschi, I. Rasa, Systems of nonlinear algebraic equations with unique solution, NUMERICAL ALGORITHMS, Vol. 68, No. 2, pp. 367-376, FEB 2015.

A. Vataavu, R. Danescu, S. Nedevschi, "Stereovision-Based Multiple Object Tracking in Traffic Scenarios Using Free-Form Obstacle Delimiters and Particle Filters", IEEE Transactions on Intelligent Transportation Systems, Vol. 16, No. 1, pp. 498-511, FEB 2015.

V. Popescu, S. Nedevschi, R. Danescu, T. Marita, "A Lane Assessment Method Using Visual Information Based on a Dynamic Bayesian Network, JOURNAL OF INTELLIGENT TRANSPORTATION SYSTEMS, Vol. 19, No. 3, pp. 225-239, JUL 2015.

A. Petrovai, R. Danescu, S. Nedevschi, "A stereovision based approach for detecting and tracking lane and forward obstacles on mobile devices", 2015 IEEE Intelligent Vehicles Symposium (IV), June 28 - July 1, 2015, COEX, Seoul, Korea, pp. 634-641.

A. Costea, A. Vataavu, S. Nedevschi, Obstacle Localization and Recognition for Autonomous Forklifts using Omnidirectional Stereovision, 2015 IEEE Intelligent Vehicles Symposium (IV), June 28 - July 1, 2015, COEX, Seoul, Korea, pp. 531-536.

A. Vataavu, A. Costea, S. Nedevschi, Modeling and Tracking of Dynamic Obstacles for Logistic Plants using Omnidirectional Stereo Vision, IEEE IROS 2015, pp. 2364 - 2369.  
A. Costea, Andreea Valeria Vesa, Sergiu Nedevschi, "Fast Pedestrian Detection for Mobile Devices", ITSC 2015, Gran Canaria, Spain, pp. 2364 - 2369.

R. Danescu, A. Petrovai, R. Itu, S. Nedevschi, "Generic Obstacle Detection for Mobile Devices Using a Dynamic Intermediate Representation", AECIA 2015, proceedings in print.

A. Marginean, A. Petrovai, M. Negru, S. Nedevschi, "Cooperative Application for Lane Change Maneuver on Smart Mobile Devices", IEEE ICCP 2015, Cluj-Napoca, pp. 279 - 286.

F. Oniga, S. Prodan, S. Nedevschi, "Traffic Light Detection on Mobile Devices", IEEE ICCP 2015, Cluj-Napoca, pp. 287 - 292.

R. Danescu, R. Itu, A. Petrovai, "Sensing the Driving Environment with Smart Mobile Devices", IEEE ICCP 2015, pp. 271-278.

R. Brehar, C. Vancea, T. Marita, I. Giosan, S. Nedevschi, "Pedestrian Detection in the Context of Multiple-Sensor Data Alignment for Far-Infrared and Stereo Vision Sensors", IEEE ICCP 2015, Cluj-Napoca, pp. 385 - 392.

A. Mayra, M. Aikio, K. Ojala, Sz. Mandici, A. Vataavu, S. Nedevschi, Fisheye optics for omnidirectional stereo camera, IEEE ICCP 2015, Cluj-Napoca, pp. 225-230.

S. Mandici, S. Nedevschi, Probabilistic Inverse Sensor Model based Digital Elevation Map Creation for an Omnidirectional Stereovision System, IEEE ICCP 2015, Cluj-Napoca, pp. 231-237.

C. Stimming, A. Krenkel, M. Boehning, A. Vataavu, Sz. Mandici, S. Nedevschi, Multi-level On-board Data Fusion for 2D Safety Enhanced by 3D Perception for AGVs, IEEE ICCP 2015, Cluj-Napoca, pp. 239-244.

R. Varga, A. Costea, S. Nedevschi, Improved Autonomous Load Handling with Stereo Cameras, IEEE ICCP 2015, Cluj-Napoca, pp. 251-255.

V. Miclea, C. Vancea, S. Nedevschi, New Sub-Pixel Interpolation Functions for Accurate Real-Time Stereo-Matching Algorithms, IEEE ICCP 2015, Cluj-Napoca, pp. 173-178.

M. Muresan, M. Negru, S. Nedevschi, Improving local stereo algorithms using binary shifted windows, fusion and smoothness constraint, IEEE ICCP 2015, Cluj-Napoca, pp. 179-185.

C. Decean, S. Nedevschi, Fusion of Stereo and Structure from Motion for enhancing PatchMatch Stereo, IEEE ICCP 2015, Cluj-Napoca, pp. 187-193.

C. Golban, P. Cobarzan, S. Nedevschi, Direct formulas for stereo-based visual odometry error modeling, IEEE ICCP 2015, Cluj-Napoca, pp. 197-202.

F. Oniga, E. Sarkozi, S. Nedevschi, Fast Obstacle Detection Using U-Disparity Maps with Stereo Vision, pp. 203-207.

I. Giosan, S. Nedevschi, C. Pocol, Shape improvement of traffic pedestrian hypotheses by means of stereo-vision and superpixels, IEEE ICCP 2015, Cluj-Napoca, pp. 217-222.

L. Patras, I. Giosan, S. Nedevschi, Body gesture validation using multi-dimensional dynamic time warping on Kinect data, IEEE ICCP 2015, Cluj-Napoca, pp. 301-307.

D. Borza, R. Danescu, A. Darabant, Eyeglasses contour extraction using genetic algorithms, IEEE ICCP 2015, Cluj-Napoca, pp. 327-333.

R. Varga, Pallet loading and unloading, Final Public Event of PAN-Robots project, 27 October 2015, Bilbao, Spain.

S. Nedevschi, 3D Omnidirectional Stereovision for Autonomous Forklift, Final Public Event of PAN-Robots project, 27 October 2015, Bilbao, Spain.

## 2014

R. Danescu, S. Nedevschi, "A Particle-Based Solution for Modeling and Tracking Dynamic Digital Elevation Maps", IEEE Transactions on Intelligent Transportation Systems, Volume: 15 Issue: 3 Pages: 1002-1015, JUN 2014

A. Ciurte, X. Bresson, O. Cuisenaire, N. Houhou, S. Nedevschi, J. P. Thiran, M. B. "Semi-Supervised Segmentation of Ultrasound Images Based on Patch Representation and Continuous Min Cut", PLOS ONE, Vol. 9, No. 7, JUL 2014.

A. Costea, S. Nedevschi, "Word Channel Based Multi-scale Pedestrian Detection Without Image Resizing and Using Only One Classifier", Proceedings of 2014 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp. 2393-2400, 2014.

- A. Costea, S. Nedevschi, "Multi-Class Segmentation for Traffic Scenarios at Over 50 FPS", Proceedings of 2014 IV Symposium, Dearborn, USA, 2014, pp. 1390-1395.
- I. Giosan, S. Nedevschi, "Superpixel-based Obstacle Segmentation from Dense Stereo Urban Traffic Scenarios Using Intensity, Depth and Optical Flow Information", accepted in IEEE Intelligent Transportation Systems Conference 2014 (ITSC 2014), October 8-11, Qingdao, China.
- A. Vatavu, R. Danescu, S. Nedevschi, "Modeling and Tracking of Crowded Traffic Scenes by using Policy Trees, Occupancy Grid Blocks and Bayesian Filters", accepted in IEEE Intelligent Transportation Systems Conference 2014 (ITSC 2014), October 8-11, Qingdao, China.
- A. Iloie, I. Giosan, S. Nedevschi, "UV disparity based obstacle detection and pedestrian classification in urban traffic scenarios", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 119-125.
- S. Mandici, S. Nedevschi, "Aggregate Road Surface based Environment Representation using Digital Elevation Maps", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 149-156.
- C. Golban, S. Nedevschi, "Moving rigid objects segmentation in 3D dynamic traffic scenes using a stereovision system", in IEEE International Conference on Intelligent Computer Communication and Processing (ICCP 2014), September 4-6, Cluj-Napoca, Romania, 2014, pp. 165-170.
- I. Giosan, S. Nedevschi, "Multi-feature Real Time Pedestrian Detection from Dense Stereo SORT-SGM Reconstructed Urban Traffic Scenarios", in International Conference on Computer Vision Theory and Applications (VISAPP 2014), Lisbon, Portugal, 2014.
- S. Nedevschi, "Stereovision based perception for driving assistance and autonomous driving", Symposium Technical University of Cluj-Napoca – Technical University of Braunschweig, Braunschweig, October 20, 2014.
- A. Vatavu, R. Danescu, S. Nedevschi, "Stereovision-Based Multiple Object Tracking in Traffic Scenarios using Free-Form Obstacle Delimiters and Particle Filters", accepted in , IEEE Transactions on Intelligent Transportation Systems, 2014.
- R. Brehar, S. Nedevschi, "Scan Window Based Pedestrian Recognition Methods Improvement By Search Space And Scale Reduction", Proceedings of 2014 Intelligent Vehicles Symposium, Dearborn, USA, 2014, pp. 529-534.
- A. Petrovai, A. Costea, F. Oniga, S. Nedevschi, "Obstacle detection using stereovision for Android-based mobile devices", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 141-148.
- P. Jeong, A. Vesa, A. Rarau, S. Nedevschi, "Real-time driving assistance application for Android-based mobile devices", IEEE International Conference on Intelligent Computer Communication and Processing (ICCP 2014), September 4-6, Cluj-Napoca, Romania, 2014, pp.205-210.
- M. Negru, S. Nedevschi, Ioan R. Peter, „Exponential Image Enhancement in Daytime Fog Conditions”, accepted in IEEE Intelligent Transportation Systems Conference 2014 (ITSC 2014), October 8-11, Qingdao, China.
- R. Brehar, S. Nedevschi, "Pedestrian Detection in Infrared Images Using HOG, LBP, Gradient Magnitude and Intensity Feature Channels", accepted in IEEE Intelligent Transportation Systems Conference 2014 (ITSC 2014), October 8-11, Qingdao, China.
- R. Varga, V. Vesa, P. Jeong, S. Nedevschi, Real-time Pedestrian Detection in Urban Scenarios, in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 113-118.
- R. Brehar, C. Vancea, S. Nedevschi, "Pedestrian Detection in Infrared Images using Aggregated Channel Features", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 127-132.
- M. Muresan, R. Brehar, S. Nedevschi, "Vision Algorithms and embedded solution for pedestrian detection with far infrared camera", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 133-140.
- M. Negru, V. Benea, S. Nedevschi, "Fog Assistance on Smart Mobile Devices", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp.197-204.
- M. Negru, S. Nedevschi, Assisting Navigation in Homogenous Fog, in International Conference on Computer Vision Theory and Applications (VISAPP 2014), Lisbon, Portugal, 2014, p. 619-626.
- S. Nedevschi, M. Drulea, R. Varga, I.Szakats, A. Vatavu, "Stereovision systems for autonomous driving and autonomous logistics", EU Robotics Forum, March 12-14, Rovereto, Italy, 2014.
- M. Drulea, I. Szakats, A. Vatavu, S. Nedevschi, "Omnidirectional stereo vision using fisheye lenses", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 251-258.
- R. Varga, S. Nedevschi, "Vision-based Autonomous Load Handling for Automated Guided Vehicles", in IEEE International Conference on Intelligent Computer Communication and Processing, September 4-6, Cluj-Napoca, Romania, 2014, pp. 239-244.

## 2013

- S. Nedevschi, V. Popescu, R. Danescu, T. Marita, and F. Oniga, "Accurate Ego-Vehicle Global Localization at Intersections Through Alignment of Visual Data With Digital Map", IEEE Transactions on Intelligent Transportation Systems, vol. 14, no. 2, p. 673-687, 2013.
- M. Drulea and S. Nedevschi, "Motion Estimation Using the Correlation Transform", IEEE Transactions on Image Processing, vol. 22, no. 8, p. 3260-3270, Aug. 2013.
- R. Varga and S. Nedevschi, "Label Transfer by Measuring Compactness", IEEE Transactions on Image Processing, vol. 22, no. 12, p. 4711-4723, Dec. 2013.
- B. Belean, M. Borda, A. Bot, and S. Nedevschi, "Low Complexity Approach for High Throughput Belief-Propagation based Decoding of LDPC Codes", Advances in Electrical and Computer Engineering, vol. 13, no. 4, p. 69-72, 2013.
- R. Danescu and S. Nedevschi, "Flexible solution for modeling and tracking generic dynamic 3D environments", in 16th International IEEE Conference on Intelligent Transportation Systems (ITSC 2013), The Hague, Netherlands, 2013, p. 1686-1692.
- R. Brehar and S. Nedevschi, "Pedestrian detection in traffic scenes using multi-attitude classifiers", in 16th International IEEE Conference on Intelligent Transportation Systems (ITSC 2013), The Hague, Netherlands, 2013, p. 1077-1082.
- F. Oniga, A. Trif, and S. Nedevschi, "Stereovision for obstacle detection on smart mobile devices: First results", in 16th International IEEE Conference on Intelligent Transportation Systems (ITSC 2013), The Hague, Netherlands, 2013, p. 342-347.
- A. Vatavu, R. Danescu, and S. Nedevschi, "Tracking multiple objects in traffic scenarios using free-form obstacle delimiters and particle filters", in 16th International IEEE Conference on Intelligent Transportation Systems (ITSC 2013), The Hague, Netherlands, 2013, p. 1346-1351.
- A. Vatavu and S. Nedevschi, "Modeling unstructured environments with dynamic persistence grids and object delimiters in urban traffic scenarios", in 2013 IEEE Intelligent Vehicles Symposium (IV), Gold Coast City, Australia, June 23-26, 2013, 2013, p. 505-510.
- A. Vatavu and S. Nedevschi, "Vision-based tracking of multiple objects in dynamic unstructured environments using free-form obstacle delimiters", in 2013 European Conference on Mobile Robots, Barcelona, Catalonia, Spain, 2013, p. 367-372.
- A. Ciurte, S. Nedevschi, and I. Rasa, "A Generic Statistical Approach for Emission Computed Tomography Reconstruction", in International Conference on Intelligent Computer Communication and Processing, 2013, vol. 1, p. 77-82.

D. Mitrea, M. P. Lupsor, S. Nedevschi, and R. Badea, "Discovering the cirrhosis grades from ultrasound images by using textural features and clustering methods", in 2013 36th International Conference on Telecommunications and Signal Processing (TSP), Rome, Italy, 2013, p. 633-637.

R. Brehar and S. Nedevschi, "Local information statistics of LBP and HOG for pedestrian detection", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 117-122.

C. Cosma, R. Brehar, and S. Nedevschi, "Pedestrians detection using a cascade of LBP and HOG classifiers", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 69-75.

A.E. Nagy, I. Szakats, T. Marita, and S. Nedevschi, "Development of an omnidirectional stereo vision system", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 235-242.

N. Tomasev, D. Pracner, R. Brehar, M. Radovanovic, D. Mladenic, M. Ivanovic, and S. Nedevschi, "Object recognition in wikimage data based on local invariant image features", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 139-146.

C. Golban and S. Nedevschi, "Speed estimation for scene objects using stereo visual odometry methods", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 91-94.

C. Golban and S. Nedevschi, "An experiment on relative rotation estimation from distant points with monocular vision", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 243-248.

A. Daniel Costea and S. Nedevschi, "Image context classification based on visual codebook feature boosting", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 133-138.

A. Trif, F. Oniga, and S. Nedevschi, "Stereovision on mobile devices for obstacle detection in low speed traffic scenarios", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 169-174.

F. Florian, I. Giosan, and S. Nedevschi, "Pedestrian detection from traffic scenes based on probabilistic models of the contour fragments", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 95-102.

I. Giosan, A. Daniel Costea, and S. Nedevschi, "Urban traffic dense-stereo obstacle classification using boosting over visual codebook features", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 111-116.

M. Negru and S. Nedevschi, "Image based fog detection and visibility estimation for driving assistance systems", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 163-168.

B. Belean, S. Nedevschi, and M. Borda, "Application specific hardware architecture for high-throughput short-length LDPC decoders", in Proceedings - 2013 IEEE 9th International Conference on Intelligent Computer Communication and Processing, ICCP 2013, Cluj-Napoca, 2013, p. 307-310.

## 2012

C. Pantilie, S. Nedevschi, "SORT-SGM: Sub-pixel Optimized Real-Time Semi-Global Matching for Intelligent Vehicles", in *IEEE Transactions on Vehicular Technology*, vol. 61, no. 3, 2012, pp. 1032-1042.

A. Ciurte, S. Nedevschi, I. Rasa, " [An algorithm for solving some nonlinear systems with applications to extremum problems](#)", in *Taiwanese Journal of Mathematics*, , vol. 16, no. 3, 2012, pp. 1137-1150.

I. Haller, S. Nedevschi, " [Design of Interpolation Functions for Sub-Pixel Accuracy Stereo-Vision Systems](#)", *IEEE Transactions on Image Processing*, vol. 21, no. 2, 2012, pp. 889-898.

R. Danescu, C. Pantilie, F. Oniga, S. Nedevschi, "Particle grid tracking system stereovision based obstacle perception in driving environments", in *IEEE Intelligent Transportation Systems Magazine*, vol. 4, No.1, 2012, pp. 6-20.

C. Golban, I. Szakats, S. Nedevschi, "Stereo Based Visual Odometry in Difficult Traffic Scenes", *Proceedings of the 2012 IEEE Intelligent Vehicle Symposium*, June 2012, Alcalá de Henares, Spain, pp. 736-741.

V. Popescu, R. Danescu, S. Nedevschi, "On-Road Position Estimation by Probabilistic Integration of Visual Cues", *Proceedings of the 2012 IEEE Intelligent Vehicle Symposium*, June 2012, Alcalá de Henares, Spain, pp. 583-589.

A. Vataavu, R. Danescu, S. Nedevschi, "Real-Time Dynamic Environment Perception in Driving Scenarios Using Difference Fronts", *Proceedings of the 2012 IEEE Intelligent Vehicle Symposium*, June 2012, Alcalá de Henares, Spain, pp. 717-722.

S. Nedevschi, R. I. Peter, A. Mandrut, "PCA type algorithm applied in Face Recognition", *Proceedings of 2012 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 30-September 1, 2012, pp. 2167-171.

## 2011

R. Danescu, F. Oniga, S. Nedevschi, " [Modeling and Tracking the Driving Environment with a Particle Based Occupancy Grid](#)", *IEEE Transactions on Intelligent Transportation Systems*, Vol.12, Issue 4, pp. 1331 - 1342, 2011.

M. Drulea, S. Nedevschi, " [Total variation regularization of local-global optical flow](#)", *IEEE, Proceedings of 2011 Intelligent Transportation Systems*, Washington, DC, USA, October 5-7, 2011, pp. 318-323.

S. Bota, S. Nedevschi, "Tracking multiple objects in urban traffic environments using dense stereo and optical flow", *Proceedings of 2011 IEEE Conference on Intelligent Transportation Systems*, Washington, DC, USA, October 5-7, 2011, pp. 791 - 796.

I. Szakats, C. Golban, S. Nedevschi, "Fast vision based ego-motion estimation from stereo sequences — A GPU approach", *Proceedings of 2011 IEEE Intelligent Transportation Systems*, Washington, DC, USA, October 5-7, 2011, pp. 538-543.

C. D. Pantilie, S. Nedevschi, "Real-time semi-global matching using segmentation and plane fitting for improved accuracy on the GPU", *Proceedings of 2011 IEEE Intelligent Transportation Systems*, Washington, DC, USA, October 5-7, 2011, pp. 784-790.

R. Danescu, S. Nedevschi, "New results in stereovision based lane tracking", *Proceedings of 2011 IEEE Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 5-9, 2011, pp. 230-235.

C. Golban, S. Nedevschi, "Linear vs. non linear minimization in stereo visual odometry", *Proceedings of 2011 IEEE Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 5-9, 2011, pp. 888-894.

O. Aycard, Q. Baig, S. Bota, F. Nashashibi, S. Nedevschi, C. Pantilie, M. Parent, P. Resende, Trung-Dung Vu, "Intersection safety using lidar and stereo vision sensors", *Proceedings of 2011 IEEE Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 5-9, 2011, pp. 863-869.

F. Oniga, S. Nedevschi, "Curb detection for driving assistance systems: A cubic spline-based approach", *Proceedings of 2011 IEEE Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 5-9, 2011, pp. 945-950.

V. Popescu, M. Bace, S. Nedevschi, "Lane identification and ego-vehicle accurate global positioning in intersections", *Proceedings of 2011 IEEE Intelligent Vehicles Symposium*, Baden-Baden, Germany, June 5-9, 2011, pp. 870-875.

A. Vataavu, R. Danescu, S. Nedevschi, " [Environment perception using dynamic polylines and particle based occupancy grids](#)", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 239 - 244.



- S. Bota, S. Nedevschi, "Vision based obstacle tracking in urban traffic environments", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 231-238.
- T. Marita, M. Negru, R. Danescu, S. Nedevschi, "Stop-line detection and localization method for intersection scenarios", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 293-298.
- M. Negru, S. Nedevschi, "Improving image quality by camera signal adaptation to Lighting conditions", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 273-280.
- R. Brehar, S. Nedevschi, "A comparative study of pedestrian detection methods using classical Haar and HoG features versus bag of words model computed from Haar and HoG features", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 299-306.
- F. Oniga, M. Miron, R. Danescu, S. Nedevschi, "Automatic recognition of Low earth orbit objects from image sequences", *Proceedings of 2011 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 25-27, 2011, pp. 335-338.

## 2010

- F. Oniga, S. Nedevschi, " [Processing Dense Stereo Data Using Elevation Maps: Road Surface, Traffic Isle and Obstacle Detection](#)", *IEEE Transactions on Vehicular Technologies*, 2010.
- A. Ciurte, S. Nedevschi, I. Rasa, "A Generalization of the EMM and ISRA Algorithms for Solving Linear Systems", in *Journal of Computational Analysis and Applications*, vol. 12, no. 4, 2010, pp. 799-816.
- I. Haller, C. Pantilie, F. Oniga, S. Nedevschi, "Real-Time Semi-Global Dense Stereo Solution with Improved Sub-Pixel Accuracy", *Proceedings of 2010 IEEE Intelligent Vehicles Symposium*, June 21-24, 2010, University of California, San Diego, CA, USA, pp. 369 - 376.
- R. Danescu, F. Oniga, S. Nedevschi, "Particle Grid Tracking System for Stereovision Based Environment Perception", in *Proceedings of the 2010 IEEE Intelligent Vehicles Symposium*, June 2010, San Diego, USA, pp. 987-992.
- I. Haller, C. Pantilie, T. Marita, and S. Nedevschi, "Statistical method for sub-pixel interpolation function estimation " in *Proceedings of 2010 IEEE Conference on Intelligent Transportation Systems*, Funchal, Madeira Island, Portugal, October 2010, pp. 1098 - 1103.
- R. Danescu, S. Nedevschi, "Detection and Classification of Painted Road Objects for Intersection Assistance Applications", in *Proceedings of 2010 IEEE Intelligent Transportation Systems Conference*, September 2010, Madeira, Portugal, pp. 433-438.
- C. Pantilie, S. Nedevschi, "Real-Time Obstacle Detection in Complex Scenarios Using Dense Stereo Vision and Optical Flow", in *Proceedings of 2010 IEEE Intelligent Transportation Systems Conference*, September 2010, Madeira, Portugal, pp. 439-444
- D. Pojar, P. Jeong, S. Nedevschi, "Improving Localization Accuracy Based on Lightweight Visual Odometry", in *Proceedings of 2010 IEEE Intelligent Transportation Systems Conference*, September 2010, Madeira, Portugal, pp.641-646.
- F. Oniga, S. Nedevschi, Polynomial Curb Detection Based on Dense Stereovision for Driving Assistance, in *Proceedings of 2010 IEEE Intelligent Transportation Systems Conference 2010*, September 2010, Madeira, Portugal, pp.1110-1115.
- S. Nedevschi, V. Popescu, T. Marita, R. Danescu, M. M. Meinecke, M. A. Obojski, J. Knaup, "Intersection Modeling by Sensorial and Digital Map Data Alignment", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 393-400.
- S. Nedevschi, I. R. Peter, I. A. Dobos, C. Prodan, "An improved PCA type algorithm applied in face recognition", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 259-262.
- I. Haller, S. Nedevschi, "GPU optimization of the SGM stereo algorithm", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 197-202.
- M. Drulea, I. R. Peter, S. Nedevschi, "Optical flow. A combined local-global approach using L1 norm", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 217-222.
- C. Pantilie, S. Bota, I. Haller, S. Nedevschi, "Real-time Obstacle Detection Using Dense Stereo Vision and Dense Optical Flow", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 191-196.
- F. Oniga, R. Danescu, S. Nedevschi, "Mixed Road Surface Model for Driving Assistance Systems", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 185-190.
- A. Vataavu, S. Nedevschi, F. Oniga, " [Real-Time Environment Representation based on Occupancy Grid Temporal Analysis using a Dense Stereo-Vision System](#)", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 203-210
- R. Brehar, S. Nedevschi, L. Daian, "Pillars Detection for Side Viewed Vehicles", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 247-250
- D. Pojar, P. Jeong, S. Nedevschi, "Localization in Urban Traffic Enviroment for Mobile Robots based on Stereo Real-Time Lightweight Visual Odometry", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 231-238
- C. Golban, I. Golban, S. Nedevschi, "Vision based three-dimensional vehicle motion detection by minimizing nonlinear functions", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 239-242
- G. Lisca, P. Jeong, S. Nedevschi, "Automatic One Step Extrinsic Calibration of a Multi Layer Laser Scanner relative to a Stereo Camera", in *Proceedings of 2010 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 26-28, 2010, pp. 223-230

## 2009

- S. Nedevschi, S. Bota, C. Tomiuc, " [Stereo-Based Pedestrian Detection for Collision-Avoidance Application](#)", in *IEEE Transactions on Intelligent Transportation Systems*, vol. 10, no. 3, 2009, pp. 380-391
- R. Danescu, S. Nedevschi, " [Probabilistic Lane Tracking in Difficult Road Scenarios Using Stereovision](#)", in *IEEE Transactions on Intelligent Transportation Systems*, vol. 10, no. 2, 2009, pp. 272-282
- F. Oniga, S. Nedevschi, M. M. Meinecke, " [Temporal Integration of Occupancy Grids Detected from Dense Stereo Using an Elevation Map Representation](#)", in *Proceedings of the 6th International Workshop on Intelligent Transportation (WIT 2009)*, Hamburg, Germany, March 24-25, 2009, pp. 133-138.
- R. Danescu, F. Oniga, S. Nedevschi, M-M. Meinecke, " [Tracking Multiple Objects Using Particle Filters and Digital Elevation Map](#)", in *Proceedings of 2009 IEEE Intelligent Vehicles Symposium*, Xi'An, China, June 3-5, 2009, pp. 88-93.
- S. Nedevschi, C. Golban, C. Mitran, " [Improving Accuracy for Ego Vehicle Motion Estimation using Epipolar Geometry](#)", in *Proceedings of 2009 IEEE Intelligent Transportation Systems Conference*, St. Louis, USA, October 3-7, 2009, pp. 596-602.
- S. Nedevschi, T. Marita, R. Danescu, F. Oniga, S. Bota, "On-board Stereo Sensor for Intersection Driving Assistance. Architecture and Specification", in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 409-416.
- Giosan, S. Nedevschi, S. Bota, Real Time Stereo Vision Based, Detection Using Full Body Contours, in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 79-86.
- C. Golban, C. Mitran, S. Nedevschi, "A Practical Method for Ego Vehicle Motion Estimation from Video", in *Proceedings of 2009 IEEE Intelligent Computer Communication*

and Processing, Cluj-Napoca, August 27-29, 2009, pp. 87-94.

M. Negru, S. Nedevschi, "Camera Response Estimation. Radiometric Calibration", in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 103-110

9. F. Oniga, S. Nedevschi, R. Danescu, M.M. Meinecke, "Global Map Building Based on Occupancy Grids Detected from Dense Stereo in Urban Environments", in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 111-118.

D.Pojar, P. Jeong, S. Nedevschi, Real-time SLAM based on Hybrid Odometry and LDPDs, in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 119-126.

R. Borca, S. Nedevschi, Correlation Between features and Classifiers for Semantic Understanding of Pedestrian Attitudes in Traffic Scenes, in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 149-152.

S. Bota, S. Nedevschi, M. Koenig, A Framework for Object Detection, Tracking and Classification in Urban Traffic Scenarios Using Stereovision, in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 153-156.

R. Danescu, D. Lebu, F. Oniga, S. Nedevschi, M.M. Meinecke, A Flexible Solution for Detection and Tracking of Multiple Objects, in *Proceedings of 2009 IEEE Intelligent Computer Communication and Processing*, Cluj-Napoca, August 27-29, 2009, pp. 165-168.

## 2008

S. Nedevschi, A. Vatavu, F. Oniga, " [Forward Collision Detection based on Elevation Map from Dense Stereo](#)", in *Proceedings of the IROS 2008 2nd Workshop on Planning, Perception and Navigation for Intelligent Vehicles*, Nice, France, pp 76-81.

S. Nedevschi, R. Danescu, C. Pocol, M. M. Meinecke, " [Stereo Image Processing for ADAS and Pre-Crash Systems](#)", in *Proceedings of the 5th International Workshop on Intelligent Transportation (WIT 2008)*, Hamburg, Germany, March, 2008, pp. 55-60.

C. Pocol, S. Nedevschi, M.M. Meinecke, " [Obstacle Detection Based on Dense Stereovision for Urban ACC Systems](#)", in *Proceedings of the 5th International Workshop on Intelligent Transportation (WIT 2008)*, Hamburg, Germany, March, 2008, pp 13-18.

T. T. Binh, M. M. Meinecke, F. Schroyen, S. Nedevschi, J. C. Knaup, " [CityACC – On the way towards an intelligent autonomous driving](#)", *The 17th World Congress of The International Federation of Automatic Control*, Seoul, Korea, 2008, pp 9534-9539

F. Oniga, S. Nedevschi, M. M. Meinecke, " [Curb Detection Based on a Multi-Frame Persistence Map for Urban Driving Scenarios](#)", in *Proceedings of 2008 IEEE Intelligent Transportation Systems Conference*, October 12-15, 2008, Beijing, China, pp 67-72.

R. Danescu, S. Nedevschi, M. M. Meinecke, T. B. To, " [A Stereovision-Based Probabilistic Lane Tracker for Difficult Road Scenarios](#)", in *Proceedings of 2008 IEEE Intelligent Vehicles Symposium*, Eindhoven, The Netherlands, June 4-6, 2008, pp 536-541.

C. Tomiuc, S. Nedevschi, "Real-time pedestrian classification exploiting 2D and 3D information", *IET Intelligent Transportation Systems Journal*, 2008, Vol.2, no. 3, pp 201-210.

S. Bota, S. Nedevschi, "Multi-Feature Walking Pedestrians Detection for Driving Assistance Systems", *IET Intelligent Transportation Systems Journal*, 2008, Vol. 2, no. 2, pp. 92-104.

## 2007

S. Nedevschi, C. Vancea, T. Marita, T. Graf, " [Online Extrinsic Parameters Calibration for Stereovision Systems Used in Far-Range Detection Vehicle Applications](#)", *IEEE Transactions on Intelligent Transportation Systems*, 2007, volume 8 issue 4, pages 651-660.

S. Nedevschi, R. Danescu, T. Marita, F. Oniga, C. Pocol, S. Sobol, C. Tomiuc, C. Vancea, M. M. Meinecke, T. Graf, T. B. To, M. A. Obojski, " [A Sensor for Urban Driving Assistance Systems Based on Dense Stereovision](#)", *Proceedings of 2007 IEEE Intelligent Vehicles Symposium*, 13-15 June, 2007, Istanbul, pp.278-286.

S. Nedevschi, C. Tomiuc, S. Bota, "Stereo Based Pedestrian Detection for Collision Avoidance Applications", *Proceedings of ICRA 2007 Workshop: Planning, Perception and Navigation for Intelligent Vehicles*, April, 2007, Roma, pp. 39-44.

F. Oniga, S. Nedevschi, M.M. Meinecke, T.B. To, " [Road Surface and Obstacle Detection Based on Elevation Maps from Dense Stereo](#)", *Proceedings of the 2007 IEEE Intelligent Transportation Systems Conference (ITSC 2007)*, Seattle, USA, September 30 - October 3, 2007, pp. 859-865.

S. Bota, S. Nedevschi, Multi-Feature "Walking Pedestrian Detection Using Dense Stereo Motion", *Proceedings of WIT 2007*, 20-21 March, 2007, Hamburg, pp. 113-118

## 2006

S. Nedevschi, C. Vancea, T. Marita, T. Graf, " [On-Line Calibration Method for Stereovision Systems Used in Vehicle Applications](#)", *Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC 2006)*, Toronto, Canada, September 17-20, 2006, pp. 957-962.

R. Danescu, S. Sobol, S. Nedevschi, T. Graf, " [Stereovision-Based Side Lane and Guardrail Detection](#)", *Proceedings of the IEEE Intelligent Transportation Systems Conference (ITSC 2006)*, Toronto, Canada, September 17-20, 2006, pp. 1156-1161.

S. Nedevschi, F. Oniga, R. Danescu, T. Graf, R. Schmidt, " [Increased Accuracy Stereo Approach for 3D Lane Detection](#)", *Proceedings of IEEE Intelligent Vehicles Symposium (IV2006)*, June 13-15, 2006, Tokyo, Japan, pp. 42-49.

T. Marita, F. Oniga, S. Nedevschi, T. Graf, R. Schmidt, " [Camera Calibration Method for Far Range Stereovision Sensors Used in Vehicles](#)", *Proceedings of IEEE Intelligent Vehicles Symposium (IV2006)*, June 13-15, 2006, Tokyo, Japan, pp. 356-363.

S. Nedevschi, S. Bota, T. Marita, F. Oniga, C. Pocol, " [Real-Time 3D Environment Reconstruction Using High Precision Trinocular Stereovision](#)", *Proceedings of 2006 IEEE-ITTC International Conference on Automation, Quality Testing, Robotics AQTR (THETA 15)*, May 25-28 2006 Cluj-Napoca, Romania, Vol.2, pp. 333-338.

S. Nedevschi, T. Marita, R. Danescu, F. Oniga, C. Pocol, S. Sobol, C. Tomiuc, C. Vancea, S. Bota, "Stereovision Sensor for Driving Assistance", in *Proceedings of IEEE MapleLeafOnlineCasino International Conference on Intelligent Computer Communication and Processing*, 1-2 Sept. 2006, Cluj-Napoca, Romania, pp. 105-112.

Corneliu Tomiuc, S. Nedevschi, "Real time object classification exploiting 2D and 3D information", *Proceedings of IEEE 2nd International Conference on Intelligent Computer Communication and Processing*, 1-2 September, Cluj-Napoca, Romania, 2006, pp. 129-134.

## 2005

S. Nedevschi, R. Danescu, T. Marita, F. Oniga, C. Pocol, S. Sobol, T. Graf, R. Schmidt, " [Driving Environment Perception Using Stereovision](#)", *Proceedings of IEEE Intelligent Vehicles Symposium (IV2005)*, June 2005, Las Vegas, USA, pp.331-336.

P. Jeong, S. Nedevschi, " [Efficient and robust classification method using combined feature vector for lane detection](#)", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, no. 4, 2005, pp. 528 – 537.

S. Nedevschi, R. Danescu, T. Marita, F. Oniga, C. Pocol, "Moving Camera Rotation Estimation Using Horizon Line Features' Motion Field", in *Proceedings of 6-th International Carpathian Control Conference*, 24-26 May 2005, Lillafured-Miskolc, Hungary, pp.449-454.



## 2004

- S. Nedevschi, R. Schmidt, T. Graf, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, " [3D Lane Detection System Based on Stereovision](#)", *IEEE Intelligent Transportation Systems Conference (ITSC)*, 2004, Washington, USA, pp.161-166.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, Thorsten Graf, Rolf Schmidt, " [High Accuracy Stereovision Approach for Obstacle Detection on Non-Planar Road](#)", *IEEE Intelligent Engineering Systems (INES)*, 2004, Cluj Napoca, Romania, pp. 211-216.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, R. Schmidt, T. Graf, "Stereovision Approach For Obstacle Detection On Non-Planar Roads", *IEEE and IFAC International Conference on Informatics in Control, Automation and Robotics*, August 2004, Setubal, Portugal, pp. 11-18.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, R. Schmidt, T. Graf, " [High Accuracy Stereo Vision System for Far Distance Obstacle Detection](#)", *IEEE Intelligent Vehicles Symposium, 2004 (IV2004)*, Parma, Italy, 292-297.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, " [Spatial Grouping of 3D Points from Multiple Stereovision Sensor](#)", *IEEE International Conference of Networking, Sensing and Control*, 2004, Taipei, Taiwan, pp.874-879.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, " [Dynamic traffic description using stereovision equipped vehicles and ad-hoc wireless network](#)", *IEEE-TTTC International Conference on Automation, Quality Testing and Robotics*, Mai 2004, Cluj Napoca, Romania, pp153-158.
- S. Nedevschi, R. Danescu, D. Frentiu, T. Marita, F. Oniga, C. Pocol, " [3D Environment Reconstruction Using Multiple Moving Stereovision Sensor](#)", *microCAD International Scientific Conference*, March 2004, Miskolc, Hungary, pp. 93-98.
- S. Nedevschi, S. Mathe, FPGA-Based Edge Detection with Subpixel Accuracy, *IEEE Intelligent Engineering Systems (INES)*, September 2004, Cluj Napoca, Romania, pp. 447-452.
- P. Jeong, S. Nedevschi, Real-time classification method for detecting road region in variant environments, *IEEE-TTTC International Conference on Automation, Quality Testing and Robotics*, May 2004, Cluj Napoca, Romania, pp. 147-152.
- P. Jeong, S. Sobol, S. Nedevschi, Vision-Based Path Generation of Mobile Robot for Autonomous Driving in Structured and Unstructured Environments, *IEEE Intelligent Engineering Systems (INES)*, September 2004, Cluj Napoca, Romania, pp. 193-198.
- D. Mitrea, S. Nedevschi, Road quality evaluation and road material recognition using 3D textons, *IEEE Intelligent Engineering Systems (INES)*, September 2004, Cluj Napoca, Romania, pp. 236-241

## 2003

- S. Nedevschi, T. Marita, R. Danescu, D. Frentiu, F. Oniga, C. Pocol, " [Real-Time Extraction of 3D Dynamic Environment Description Using Multiple Stereovision Sensor](#)", *IIIS International Conference on Computer, Communication And Control Technologies, CCCT 2003*, Orlando, Florida, 29 July - 1 August, 2003, Volume 3, pp. 216-221.
- P. Jeong, S. Nedevschi, Intelligent Road Detection Based on Local Averaging Classifier in Real-Time Environments, *12th International Conference on Image Analysis and Processing, Mantua*, 17-19 September, 2003, pp. 245 - 249.
- P. Jeong, S. Nedevschi, "Unsupervised Multi-classification for Lane Detection using the Combination of Colour-Texture and Gray-Texture", *Proceedings of International Conference on CCCT 2003*, Orlando, Florida, 29 July - 1 August, 2003, Volume 1, pp. 216-221.
- S. Nedevschi, T. Marita, R. Danescu, F. Oniga, D. Frentiu, C. Pocol, "Camera Calibration Error Analysis in Stereo Measurements", *microCAD International Scientific Conference*, March 2003, Miskolc, Hungary, pp. 51-56.

## 2002

- S. Nedevschi, T. Marita, M. Vaida, R. Danescu, D. Frentiu, F. Oniga, C. Pocol, D. Moga, "Camera Calibration Method for Stereo Measurements" - extended version, *Journal of Control Engineering and Applied Informatics*, 2002, Bucharest, Romania, pp. 21-27
- S. Nedevschi, T. Marita, M. Vaida, R. Danescu, D. Frentiu, F. Oniga, C. Pocol, "Camera Calibration Method for Stereo Measurements", *IEEE-TTTC International Conference on Automation, Quality and Testing, Robotics*, May 2002, Cluj-Napoca, Romania, pp. 111-116.

## 2001

- S. Nedevschi, Tiberiu Marita, Daniela Puiu, " [Intermediate Representation in Model Based Recognition Using Straight Line and Ellipsoidal Arc Primitives](#)", *Proceedings 11th International Conference on Image Analysis and Processing*, 26-28 Sept. 2001, pp. 156-161.