



Personal information:

Name: Denis Safidinov Chikurtev

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Education

Academic degree: PhD, Institute of Information and Communication Technologies - BAS,
Scientific area: Communication and Computing Technique – Application of the principles and methods of cybernetics in different scientific areas, Year of acquire 2017, PhD Thesis title:
RESEARCH AND CONTROL OF SERVICE MOBILE ROBOTS FOR HELPING HUMANS

Academic degree: Master of Science, Technical University - Sofia, **Scientific area:** Automation, Information, Control, Robotics, Year of acquire 2014

Academic degree: Bachelor of Science, Technical University - Sofia, **Scientific area:** Automation, Information and Control, Year of acquire 2012

Degree: High School, Professional High School of Technologies - Smolyan, **Specialty:** Electronics and Computing techniques, Year of acquire 2008

Working experience

2020 – till now: Research Engineer in Perelik Soft

- Research in scientific areas – Computer vision, Robotics, AI;
- Publishing scientific papers;
- Creating micro-service template: python, flask, docker, pytest, docker-composer, jupyter notebook;
- Processing news data from websites and visualizing in map.

2019 – till now: Assistant Professor in Institute of Information and Communication Technologies – BAS

- Research in scientific areas – Robotics, Embedded systems, Computer vision, Engineering education;
- Publishing scientific papers;
- Robotics programming: C++, python

- Development of mobile robot and robotic arm tele-control by Leap Motion: python
- Web programming: JavaScript, HTML, Nodejs, Django

2017 – 2019: Assistant Researcher in Institute of Information and Communication Technologies – BAS

- Research in scientific areas – Service robotics, Information technologies;
- Publishing scientific papers;

2014 – 2017: PhD student and developer in Institute of Information and Communication Technologies – BAS

- Scientific research in the field of mobile robotics;
- ROS and Arduino programming: C++, Python, Arduino PL

2012 - 2014: developer in Institute of System Engineering and Robotics – BAS

- Experience Robot Operating System;
- Development of tele-control system of mobile robot via Zig-bee: C#, Arduino PL

Skills

Computer skills:

ROS, Gazebo, RViz, OpenCV, Matlab, Linux, MoveIt, SolidWorks, Arduino, Docker

Programming in C/C++, Python, C#, HTML, JavaScript

Experience with sensors, actuators and other:

Control of DC and Stepper motors

Microsoft Kinect – 3D scanner and depth sensor

RP-Lidar – laser scanner sensor

Intel Real Sense – 3D scanning and object recognition

Thermal Camera FLIR P640 – measurement of the temperature of objects

Control of Robotic Arm Manipulators and Mobile robot Platforms

Control of measurement sensors: ultrasound and infrared sensors, encoders etc.

Languages:

	Understandig	Talking	Writing
English	5	5	5

Participation in projects:

Project 1:

Title: Software architectures and Communication systems for robots and embedded systems

Number and date of the contract: 01.10.2020

Project coordinator: Denis Chikurtev

The research in the project is focused on software architectures for control and communication in modular systems and research of embedded intelligent systems and technologies such as Lidar, GPS and computer vision. The idea is building of a software system to control a mobile robot, which as additional embedded systems includes a mapping system with Lidar, a localization system with GPS and a computer vision system with a USB camera.

Project 1:

Title: Research and development of innovative, intelligent information and communication technologies for control of service robots

Number and date of the contract: M27/10 – 10.12.2018

Project coordinator: Denis Chikurtev

The research in the project is focused on multi-channel control system for robot control, communication system for robot control, algorithms for computer vision for robotics and algorithms for autonomous navigation.

Project 2:

Title: Development of an innovative telecommunication service by BTC EAD

Number and date of the contract: BG16RFOP002-1.005-0197-C01

Project coordinator: Prof. Dr. Dimitar Karastoyanov

My contribution in the project was focused on research of algorithms for voice recognition and voice verification.

Project 3:

Title: Investigation and optimization of milling processes by using innovative grinding environments (lifters)

Number and date of the contract: DM 17/8 - 2017

Project coordinator: Nikolay Stoimenov

My contribution in the project was development of algorithm for autonomous mill scanning by using mobile robot and depth sensor.

Project 4:

Title: 3D DIGITALIZATION OF OBJECTS FROM NATIONAL CULTURAL-HISTORICAL HERITAGE

Number and date of the contract: H17/3-2017

Project coordinator: Prof. Dr. Dimitar Nedelchev Karastoyanov

My contribution in the project was research of methods for 3D object scanning and reconstruction.

Project 5:

Title: Telecontrolled service robots for increasing the quality of life of elderly and disabled

Number and date of the contract: DN 07/23 – 15.12.2016

Project coordinator: Nayden Chivarov

My contribution in the project was development of different methods and algorithms for tele-control of mobile robot and arm manipulator. Research of algorithms for robotic arm control.

Project 6:

Title: SYSTEM FOR NAVIGATION, LOCALIZATION AND OBJECT RECOGNITION IN INTELLIGENT SERVICE ROBOTS

Number or acronym of the project: DFNP-102/04.05.2016

Project coordinator: Denis Chikurtev

My contribution in the project was research and development of algorithms for mobile robot navigation. Research of algorithms for object recognition and face detection.

Project 7:

Title: ADVANCED COMPUTING FOR INNOVATION (ACOMIN)

Type of the competition and year: FP7-REGPOT-2012-2013-1

Number or acronym of the project: 316087

Project coordinator: Prof. Galia Angelova

Project 8:

Title: Increasing the efficiency and quality of training and research potential in the field of System Engineering and Robotics

Type of the competition and year: Support for the PhD students, post-graduate students and young scientists, 2011

Project coordinator: Nayden Chivarov

Scientific Publications:

1. Chikurtev, D, Bogdanov, S, Spasova, N, Ivanov, V. Prerequisites for a Self-sustaining Embedded System with Artificial Intelligence. 29-th International Scientific Conference "Electronics" - ET2020, IEEE, 2020, ISBN:978-1-7281-7427-3, DOI:10.1109/ET50336.2020.9238328
2. Bogdanov, S, Chikurtev, D, Spasova, N. Embedded system environment self-awareness using LIDAR technologies for robotics applications. IOP Conference Series: Materials Science and Engineering, 1031, IOP Publishing Ltd, 2021, DOI:<https://doi.org/10.1088/1757-899X/1031/1/012047>
3. Chikurtev, D. Mobile Robot Simulation and Navigation in ROS and Gazebo. International Conference Automatics and Informatics, IEEE, 2021, ISBN:978-1-7281-9309-0, DOI:10.1109/ICAI50593.2020.9311330
4. Chikurtev, D., Chikurteva, A., Spasova, N.. Information technologies for development of educational resources in robotics. IOP Conference Series: Materials Science and Engineering, 1031, IOP Publishing Ltd, 2021, DOI:<https://doi.org/10.1088/1757-899X/1031/1/012122>
5. Chivarov N., Chikurtev D., Yovchev K., Shivarov S.. Cost-Oriented Mobile Robot Assistant for Disabled Care. IFAC-PapersOnLine, 48, 24, Elsevier Ltd., 2015, ISSN: 2405-8963, <https://doi.org/DOI:10.1016/j.ifacol.2015.12.069>, 128-133.
6. Chivarov N., Shivarov S., Yovchev K., Chikurtev D., Shivarov N.. Intelligent Modular Service Mobile Robot ROBCO 12 for Elderly and Disabled Persons Care. IEEE RAAD 2014 - Conference Proceedings 6 January 2015, Article number 7002238, Institute of Electrical and Electronics Engineers Inc., 2015, ISBN:978-147996798-8, <https://doi.org/DOI:10.1109/RAAD.2014.7002238> , 343-348
7. Chikurtev D., Groueva M., Stoimenov N.. Method for testing the grinding media in mills. 8th International Conference on Mechanical Technologies and Structural Materials (MTSM 2018), Split, Croatia, September 27-28, 2018, 70, Croatian Society for Mechanical Technologies, Croatia, 2018, ISSN:1847-7917, 7-11
8. Chivarov N., Chikurtev D., Emanuil M., Chivarov S., Kopacek P. Cost Oriented Tele-Controlled Service Robot for Increasing the Quality of Life of Elderly and Disabled - ROBCO 18. IFAC-PapersOnLine, 51, 30, Elsevier Ltd., 2018, ISSN: 2405-8963, DOI: <https://doi.org/10.1016/j.ifacol.2018.11.285>, 192-197.
9. Chivarov N., Chikurtev D., Pleva M., Ondas S.. Exploring Human-Robot Interfaces for Service Mobile Robots. 2018 World Symposium on Digital Intelligence for Systems and Machines (DISA), IEEE, 2018, ISBN:978-1-5386-5102-5, <https://doi.org/DOI:10.1109/DISA.2018.8490531> , 337-342
10. Chivarov N., Chikurtev D., Rangelov I., Markov E., Gigov A., Shivarov N., Yovchev K., Miteva L.. Usability study of tele-controlled service robot for increasing the quality of life of elderly and disabled – “ROBCO 17”. Mechanisms and Machine Science, 67, Springer Netherlands, 2018, ISSN: 2211-0984, https://doi.org/DOI:10.1007/978-3-030-00232-9_13, 121-131.
11. Karastoyanov D., Chikurtev D., Ivanov P., Kalichin Z., Grozdanova T., Kandeveva M.. Self-Organization Effects on Tribosystems when Lubricated with a Metal-plating Additive Valena.

- 9th International Conference on Tribology, BalkanTRib17, 2018, ISSN:17578981, <https://doi.org/DOI:10.1088/1757-899X/295/1/012026> ,
12. Andreev S., Spasova N., Chikurtev D.. Investigations on Heat Extraction in Multilayer PCB Structures. 2018 IEEE XXVII International Scientific Conference Electronics - ET, IEEE, 2018, ISBN:978-1-5386-6693-7, <https://doi.org/DOI:10.1109/ET.2018.8549638>
 13. Yovchev K., Chikurtev D., Chivarov N., Shivarov N.. Precise positioning of a robotic arm manipulator using stereo computer vision and iterative learning control. Mechanisms and Machine Science, 49, Springer Netherlands, 2018, ISBN: 978-331961275-1, ISSN: 2211-0984, https://doi.org/DOI:10.1007/978-3-319-61276-8_32 , 289-296.
 14. Chikurtev, D, Rangelov, I, Yovchev, K, Chivarov, N. Communication system for remote control of service robots. IFAC-PapersOnLine, 52, Elsevier, 2019, ISSN:24058963, 192-197.
 15. Chikurtev, D, Yovchev, K, Chivarov, N, Rangelov, I. Indoor Navigation Using Existing Infrastructure for Professional Service Robots. Advances in Intelligent Systems and Computing, 980, Springer Nature, 2019, ISBN:978-303019647-9, ISSN:2194-5357, https://doi.org/DOI:10.1007/978-3-030-19648-6_27 , 231-239.
 16. Chivarov, N, Chikurtev, D, Chivarov, S, Pleva, M, Ondas, S, Juhar, J, Yovchev, K. A Case Study on Human-Robot Interaction of the Remote-Controlled Service Robot for Elderly and Disabled Care. 2019, ISSN:2585-8807
 17. Chivarov, N, Chikurtev, D, Pleva, M, Ondas, J, Josef, J, Yuan-Fu Liao. Spoken Dialogue-based Remote Control of Educational Mobile Robot with Mecanum Wheels. 17th International Conference on Emerging eLearning Technologies and Applications, 2019, ISBN:978-1-7281-4966-0, DOI: <https://doi.org/10.1109/ICETA48886.2019.9040010> , 115-121
 18. Chivarov, N, Marinov, M, Lazarov, V, Chikurtev, D, Goranov, G. Wearable Internet of Things to Trigger the Actions of a Tele-Controlled Service Robot for Increasing the Quality of Life of Elderly and Disabled. 17th International Conference on Emerging eLearning Technologies and Applications, 2019, ISBN:978-1-7281-4966-0, DOI: <https://doi.org/10.1109/ICETA48886.2019.9040103> , 122-125
 19. Chivarov, S, Chikurtev, D, Yovchev, K, Chivarov, N. Multi-channel software infrastructure for remote control of service robots. 6th International Conference on Control, Decision and Information Technologies (CoDIT), IEEE, 2019, ISBN:978-172810521-5, <https://doi.org/DOI:10.1109/CoDIT.2019.8820362> , 1283-1288.
 20. Kambushev, M, Biliderov, S, Yovchev, K, Chikurtev, D, Kambushev, K, Chivarov, N. Influence of atmospheric turbulence on the control of flying robotics systems. 2019 IEEE XXVIII International Scientific Conference Electronics (ET), IEEE, 2019, ISBN:978-1-7281-2574-9, DOI:10.1109/ET.2019.8878670,
 21. Yovchev, K, Chikurtev, D, Chivarov, N, Grueva, M. An Intelligent Control System for Service Robots. IFAC-PapersOnLine, 52, Elsevier, 2019, ISSN:24058963, 327-332.
 22. Chikurtev, D, Yovchev, K, Chikurteva, Ava, Chivarov, N. Determination of Object Location for Robotic Grasping Using Depth Vision Sensor. Mechanisms and Machine Science, 84, Springer, Cham, 2020, ISSN:2211-0984, DOI: https://doi.org/10.1007/978-3-030-48989-2_63 , 596-605.

23. Rehabilitation-ROBCO ®. IOP Conference Series: Materials Science and Engineering, 878, IOP Publishing Ltd., 2020, ISSN:1757-8981, DOI: <https://doi.org/10.1088/1757-899X/878/1/012004>
24. Yosifova, V, Chikurtev, D, Petrov, R. Research and analysis of modern space heating technologies and management for industrial buildings. IOP Conference Series: Materials Science and Engineering, 878, IOP Publishing Ltd., 2020, ISSN:1757-8981, DOI: <https://doi.org/10.1088/1757-899X/878/1/012010>
25. D. Chikurtev, I. Rangelov, N. Chivarov, E. Markov, K. Yovchev, Control of Robotic Arm Manipulator Using ROS, PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 69, Sofia, 2017, p. 52-61, ISSN 0204-9848, Online ISSN: 1314-409X
26. D. Chikurtev, I. Rangelov, N. Chivarov, N. Shivarov, A. Gigov, Control of service robot via voice commands, PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 69, Sofia, 2017, p. 62-67, ISSN 0204-9848, Online ISSN: 1314-409X
27. D. Chikurtev, M. Groueva, N. Stoimenov, “Distributed group control of mobile robots”, International Conference Automation and Informatics’2017, 4-6 October, Sofia, Bulgaria, ISSN 1313-1850
28. D. Chikurtev – Face detection and recognition for intelligent service robots, PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 68, Sofia, 2017, ISSN 0204-9848.
29. D. Chikurtev – Vision system for recognizing objects using Open Source Computer Vision (OpenCV) and Robot Operating System (ROS), PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 68, Sofia, 2017, ISSN 0204-9848.
30. D. Chikurtev - SYSTEM FOR NAVIGATION, LOCALIZATION AND OBJECT RECOGNITION IN INTELLIGENT SERVICE ROBOTS, ADP 2017, June, Sozopol, Bulgaria; p. 324-328, ISSN 1310-3946.
31. D. Chikurtev, Service Mobile Robots – Localization And Recognition of Rooms And Buildings, Using Pre-Made Maps, International Conference Robotics, Automation and Mechatronics’16 RAM 2016, Byaga, Bulgaria, October 3-4, 2016, стр. 33-38, ISSN 1314-4634.
32. D. Chikurtev, K. Yovchev, E. Chikurtev, Design and functionality of Web User interface for control of service mobile robot through the Internet, PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 67, Sofia, 2016, p. 51-60, ISSN 0204-9848.
33. D. Chikurtev, Indoor Navigation for Service Mobile Robots Using Robot Operating System (ROS), PROBLEMS OF ENGINEERING CYBERNETICS AND ROBOTICS, Vol 67, Sofia, 2016, p. 61-70, ISSN 0204-9848.
34. D. Chikurtev, Nayden Chivarov, Stefan Shivarov, Nedko Shivarov – Controlling Chain Robot with Wireless Communication, ADP 2014, 19-22 June, Sozopol, Bulgaria; p. 325-329, ISSN 1310-3946.
35. D. Chikurtev, Nayden Chivarov, Daniel Radev and Nedko Shivarov – Application of Arduino for Control of Mobile Mini-Robot with DC Motors, ADP 2013, 01-03 June, Sozopol, Bulgaria; p.392-397, ISSN 1314-4634.