

Andrzej Pronobis

KTH Royal Institute of Technology
School of Electrical Engineering and Computer Science
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RESEARCH INTERESTS My research focuses on learning approaches that enable intelligent agents to perceive, explore, and understand large human environments in order to plan and execute complex tasks in collaboration with humans. I am particularly interested in goal-directed solutions that enable reasoning under uncertainty by fusing multi-modal information at different levels of abstraction. My goal is to build end-to-end systems that share autonomy with human users and learn by interacting with the real world.

Research areas: artificial intelligence, robotics, machine learning, deep learning, robot vision

EXPERIENCE **Senior Researcher, KTH Royal Institute of Technology**, Stockholm, Sweden 2016–2018
School of Electrical Engineering and Computer Science
Research in robotics and machine learning.

Research Associate, University of Washington, Seattle, WA 2013–2018
Paul G. Allen School of Computer Science & Engineering
Research in robotics, machine learning, and human-robot interaction.
Advisor: Rajesh P. N. Rao; Past Advisors: Dieter Fox, Maya Cakmak

Head of Research, OculusAI Technologies, Stockholm, Sweden 2011–2013
Startup developing mobile applications for vision-based product recognition
Research and development in computer vision and machine learning.
Assembled and headed a team of four Ph.D. research scientists and two research engineers.

Postdoctoral Researcher, KTH Royal Institute of Technology, Stockholm, Sweden 2012
Robotics, Perception and Learning Lab
Part-time appointment. Designed and taught undergraduate and graduate courses.
Advisor: Patric Jensfelt

Ph.D. Student, KTH Royal Institute of Technology, Stockholm, Sweden 2006–2011
Robotics, Perception and Learning Lab
Research in robotics, computer vision and machine learning.
Advisors: Patric Jensfelt, Barbara Caputo, Henrik I. Christensen

Research Assistant, Idiap Research Institute, Martigny, Switzerland 2008
Institute affiliated with EPFL École Polytechnique Fédérale de Lausanne
Research in machine learning and computer vision.
Advisor: Barbara Caputo

Erasmus Student, KTH Royal Institute of Technology, Stockholm, Sweden 2005
EU Erasmus International Student Exchange Programme

EDUCATION **Ph.D. in Computer Science, KTH Royal Institute of Technology**, Stockholm, Sweden Dec 2011
Thesis: “Semantic Mapping with Mobile Robots”
Advisors: Patric Jensfelt, Barbara Caputo, Henrik I. Christensen

M.Sc. in Computer Science, Silesian University of Technology, Gliwice, Poland Jan 2006
Double degree in computer science and electrical engineering. Graduated with highest marks.
Thesis: “Indoor Place Recognition Using Support Vector Machines”
Advisors: Barbara Caputo, Jacek Łęski

GRANTS AND
AWARDS

Research Grants

- Swedish Research Council Project Grant for Junior Researchers* (PI) 2013
Prestigious, nation-wide grant in natural and engineering sciences of
3,500,000 SEK (400,000 USD) and acceptance rate of **2.5%**.
- UW Reality Lab Grant* (Co-PI) 2018
Grant for conducting research on virtual reality for learning deep models in robotics.
- Toyota Research Grant* (Co-PI) 2013
Grant for postdoctoral research at the University of Washington (**85,000 USD**).

Research Awards

- Finalist for the *Google Best Paper Award* 2017
at the ICML Workshop on Principled Approaches to Deep Learning
Paper: “Library for Learning and Inference with Sum-Product Networks and TensorFlow”
- Postdoc Research Award*, University of Washington, Computer Science & Engineering 2014
- Shortlisted for the *2012 EURON Georges Giralt PhD Award* 2012
Ph.D. thesis in the top nine Ph.D. theses in robotics in Europe.
- Finalist for the *ICRA Best Cognitive Robotics Paper Award* 2012
Paper: “Large-scale Semantic Mapping and Reasoning with Heterogeneous Modalities”
- Winning robot in the *CogX Cognitive Robot Programming Competition* 2009

Entrepreneurship Awards

- Winning project in the *Excitera 2010 Innovation Challenge* 2010

Sponsorship Grants

- Google Research Sponsorship* 2017
Sponsorship for organizing the ICML Workshop on Principled Approaches to Deep Learning.

Fellowships

- DIRAC (EU FP6 Integrated Project) Training Programme* Mar–Oct 2008
Fellowship for research at the Idiap Research Institute.

PROJECTS

- Planning by inference with probabilistic deep models 2018
- Language-conditioned imitation learning for mobile robot navigation and exploration 2017–2018
- LibSPN - Library for learning and inference with Sum-Product Networks 2015–2018
- Generative, probabilistic deep models for semantic spatial understanding 2016–2017
- InfoBot - Mobile robot answering natural language questions about its environment 2013–2015
- Productify - Mobile application for vision-based apparel product recognition 2011–2013
- Dora (EU FP7 Project CogX) - Mobile robot actively filling gaps in its knowledge 2008–2013
- Active place and object search driven by semantic spatial knowledge 2010–2013
- Probabilistic, multi-modal semantic mapping for mobile robots 2009–2011
- Incremental learning for adaptive, multi-modal place classification 2006–2009
- Explorer (EU FP6 Project CoSy) - Mobile robot communicating about its environment 2006–2007

SELECTED
PUBLICATIONS

Google Scholar: scholar.google.com/citations?user=YyzwDhIAAAAJ
Citations: **1900** h-index: **22** i10-index: **33**

- K. Zheng, **A. Pronobis**, and R. P. N. Rao. “Learning Graph-Structured Sum-Product Networks for Probabilistic Semantic Maps”. In: *AAAI Conference on Artificial Intelligence (AAAI)*. 2018.
- A. Pronobis** and R. P. N. Rao. “Learning Deep Generative Spatial Models for Mobile Robots”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2017.
- M. Hanheide, M. Göbelbecker, G. S. Horn, **A. Pronobis**, K. Sjöo, A. Aydemir, P. Jensfelt, C. Gretton, R. Dearden, M. Janicek, H. Zender, G.-J. Kruijff, N. Hawes, and J. L. Wyatt. “Robot Task Planning and Explanation in Open and Uncertain Worlds”. In: *Artificial Intelligence* 247 (2017).
- A. Aydemir, **A. Pronobis**, M. Göbelbecker, and P. Jensfelt. “Active Visual Object Search in Unknown Environments Using Uncertain Semantics”. In: *Transactions on Robotics (T-RO)* 29.4 (2013).
- A. Pronobis** and P. Jensfelt. “Large-scale Semantic Mapping and Reasoning with Heterogeneous Modalities”. In: *International Conference on Robotics and Automation (ICRA)*. 2012.
- A. Pronobis**, O. M. Mozos, B. Caputo, and P. Jensfelt. “Multi-modal Semantic Place Classification”. In: *International Journal of Robotics Research (IJRR)* 29.2-3 (2010).
- A. Pronobis**, J. Luo, and B. Caputo. “The More You Learn, the Less You Store: Memory-controlled Incremental SVM for Visual Place Recognition”. In: *Image and Vision Computing (IMAVIS)* 28.7 (2010).

ALL
PUBLICATIONS

Peer-reviewed Journal Articles

- M. Hanheide, M. Göbelbecker, G. S. Horn, **A. Pronobis**, K. Sjöo, A. Aydemir, P. Jensfelt, C. Gretton, R. Dearden, M. Janicek, H. Zender, G.-J. Kruijff, N. Hawes, and J. L. Wyatt. “Robot Task Planning and Explanation in Open and Uncertain Worlds”. In: *Artificial Intelligence* 247 (2017).
- J. Martínez-Gómez, B. Caputo, M. Cazorla, H. I. Christensen, M. Fornoni, I. García-Varea, and **A. Pronobis**. “Where Are We After Five Editions?: Robot Vision Challenge, a Competition that Evaluates Solutions for the Visual Place Classification Problem”. In: *Robotics & Automation Magazine (RAM)* 22.4 (2015).
- A. Aydemir, **A. Pronobis**, M. Göbelbecker, and P. Jensfelt. “Active Visual Object Search in Unknown Environments Using Uncertain Semantics”. In: *Transactions on Robotics (T-RO)* 29.4 (2013).
- A. Pronobis**, O. M. Mozos, B. Caputo, and P. Jensfelt. “Multi-modal Semantic Place Classification”. In: *International Journal of Robotics Research (IJRR)* 29.2-3 (2010).
- A. Pronobis**, J. Luo, and B. Caputo. “The More You Learn, the Less You Store: Memory-controlled Incremental SVM for Visual Place Recognition”. In: *Image and Vision Computing (IMAVIS)* 28.7 (2010).
- A. Pronobis**, B. Caputo, P. Jensfelt, and H. I. Christensen. “A Realistic Benchmark for Visual Indoor Place Recognition”. In: *Robotics and Autonomous Systems (RAS)* 58.1 (2010).
- J. L. Wyatt, A. Aydemir, M. Brenner, M. Hanheide, N. Hawes, P. Jensfelt, M. Kristan, G.-J. M. Kruijff, P. Lison, **A. Pronobis**, K. Sjöo, A. Vrečko, H. Zender, M. Zillich, and D. Skočaj. “Self-Understanding & Self-Extension: A Systems and Representational Approach”. In: *Transactions on Autonomous Mental Development (TAMD)* 2.4 (2010).
- A. Pronobis** and B. Caputo. “COLD: COsy Localization Database”. In: *International Journal of Robotics Research (IJRR)* 28.5 (2009).

Peer-reviewed Conference Papers

- K. Zheng, **A. Pronobis**, and R. P. N. Rao. “Learning Graph-Structured Sum-Product Networks for Probabilistic Semantic Maps”. In: *AAAI Conference on Artificial Intelligence (AAAI)*. 2018.

- A. Pronobis** and R. P. N. Rao. “Learning Deep Generative Spatial Models for Mobile Robots”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2017.
- M. J.-Y. Chung*, **A. Pronobis***, M. Cakmak, D. Fox, and R. P. N. Rao. “Autonomous Question Answering with Mobile Robots in Human-Populated Environments”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2016.
- M. J.-Y. Chung, **A. Pronobis**, M. Cakmak, D. Fox, and R. P. N. Rao. “Designing Information Gathering Robots for Human-Populated Environments”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2015.
- M. J.-Y. Chung, **A. Pronobis**, M. Cakmak, D. Fox, and R. P. N. Rao. “Exploring the Potential of Information Gathering Robots”. In: *International Conference on Human-Robot Interaction Extended Abstracts (HRI)*. 2015.
- J. Ekekrantz, **A. Pronobis**, J. Folkesson, and P. Jensfelt. “Adaptive Iterative Closest Keypoint”. In: *European Conference on Mobile Robots (ECMR)*. 2013.
- A. Pronobis** and P. Jensfelt. “Large-scale Semantic Mapping and Reasoning with Heterogeneous Modalities”. In: *International Conference on Robotics and Automation (ICRA)*. 2012.
- M. Göbelbecker, M. Hanheide, C. Gretton, N. Hawes, **A. Pronobis**, A. Aydemir, S. Kristoffer, and H. Zender. “Dora: A Robot that Plans and Acts Under Uncertainty”. In: *35th German Conference on Artificial Intelligence (KI)*. 2012.
- A. Pronobis** and P. Jensfelt. “Hierarchical Multi-Modal Place Categorization”. In: *European Conference on Mobile Robots (ECMR)*. 2011.
- A. Aydemir, M. Göbelbecker, **A. Pronobis**, K. Sjöö, and P. Jensfelt. “Plan-based Object Search and Exploration Using Semantic Spatial Knowledge in the Real World”. In: *European Conference on Mobile Robots (ECMR)*. 2011.
- M. Hanheide, C. Gretton, R. W. Dearden, N. A. Hawes, J. L. Wyatt, **A. Pronobis**, A. Aydemir, M. Göbelbecker, and H. Zender. “Exploiting Probabilistic Knowledge under Uncertain Sensing for Efficient Robot Behaviour”. In: *International Joint Conference on Artificial Intelligence (IJCAI)*. 2011.
- K. Sjöö, **A. Pronobis**, and P. Jensfelt. “Functional Topological Relations for Qualitative Spatial Representation”. In: *International Conference on Advanced Robotics (ICAR)*. 2011.
- A. Aydemir, K. Sjöö, J. Folkesson, **A. Pronobis**, and P. Jensfelt. “Search in the Real World: Active Visual Object Search Based on Spatial Relations”. In: *International Conference on Robotics and Automation (ICRA)*. 2011.
- A. Pronobis**, K. Sjöö, A. Aydemir, A. N. Bishop, and P. Jensfelt. “Representing Spatial Knowledge in Mobile Cognitive Systems”. In: *11th International Conference on Intelligent Autonomous Systems (IAS)*. 2010.
- A. Pronobis**, K. Sjöö, A. Aydemir, A. N. Bishop, and P. Jensfelt. “A Framework for Robust Cognitive Spatial Mapping”. In: *International Conference on Advanced Robotics (ICAR)*. 2009.
- A. Pronobis**, O. M. Mozos, and B. Caputo. “SVM-based Discriminative Accumulation Scheme for Place Recognition”. In: *International Conference on Robotics and Automation (ICRA)*. 2008.
- M. M. Ullah, **A. Pronobis**, B. Caputo, J. Luo, P. Jensfelt, and H. I. Christensen. “Towards Robust Place Recognition for Robot Localization”. In: *International Conference on Robotics and Automation (ICRA)*. 2008.
- H. Maboudi Afkham, A. Tavakoli Targhi, J.-O. Eklundh, and **A. Pronobis**. “Joint Visual Vocabulary For Animal Classification”. In: *International Conference on Pattern Recognition (ICPR)*. 2008.
- A. Pronobis** and B. Caputo. “Confidence-based Cue Integration for Visual Place Recognition”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2007.

- J. Luo, **A. Pronobis**, B. Caputo, and P. Jensfelt. “Incremental Learning for Place Recognition in Dynamic Environments”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2007.
- J. Luo, **A. Pronobis**, and B. Caputo. “SVM-based Transfer of Visual Knowledge Across Robotic Platforms”. In: *International Conference on Computer Vision Systems (ICVS)*. 2007.
- A. Pronobis**, B. Caputo, P. Jensfelt, and H. I. Christensen. “A Discriminative Approach to Robust Visual Place Recognition”. In: *International Conference on Intelligent Robots and Systems (IROS)*. 2006.

Book Chapters

- A. Pronobis**, P. Jensfelt, K. Sjöo, H. Zender, G.-J. M. Kruijff, O. M. Mozos, and W. Burgard. “Semantic Modelling of Space”. In: *Cognitive Systems*. Edited by H. I. Christensen, G.-J. M. Kruijff, and J. L. Wyatt. Volume 8. Cognitive Systems Monographs. Springer Berlin Heidelberg, 2010.
- K. Sjöo, H. Zender, P. Jensfelt, G.-J. M. Kruijff, **A. Pronobis**, N. Hawes, and M. Brenner. “The Explorer System”. In: *Cognitive Systems*. Edited by H. I. Christensen, G.-J. M. Kruijff, and J. L. Wyatt. Volume 8. Cognitive Systems Monographs. Springer Berlin Heidelberg, 2010.
- L. Xing and **A. Pronobis**. “Multi-cue Discriminative Place Recognition”. In: *Multilingual Information Access Evaluation Vol. II Multimedia Experiments*. Edited by C. Peters, B. Caputo, J. Gonzalo, G. J. F. Jones, J. Kalpathy-Cramer, H. Müller, and T. Tsirikika. Volume 6242. Lecture Notes in Computer Science. Springer, 2010.
- A. Pronobis**, H. I. Christensen, and B. Caputo. “Overview of the ImageCLEF@ICPR 2010 Robot Vision Track”. In: *Recognizing Patterns in Signals, Speech, Images and Videos*. Edited by D. Ünay, Z. Çataltepe, and S. Aksoy. Volume 6388. Lecture Notes in Computer Science. Springer Berlin Heidelberg, 2010.
- A. Pronobis** and B. Caputo. “The Robot Vision Task”. In: *ImageCLEF*. Edited by H. Müller, P. Clough, T. Deselaers, and B. Caputo. Volume 32. The Information Retrieval Series. Springer Berlin Heidelberg, 2010.
- A. Pronobis**, L. Xing, and B. Caputo. “Overview of the CLEF 2009 Robot Vision Track”. In: *Multilingual Information Access Evaluation Vol. II Multimedia Experiments*. Edited by C. Peters, B. Caputo, J. Gonzalo, G. J. F. Jones, J. Kalpathy-Cramer, H. Müller, and T. Tsirikika. Volume 6242. Lecture Notes in Computer Science. Springer, 2010.

Peer-reviewed Workshop Papers

- A. Pronobis**, A. Ranganath, and R. P. N. Rao. “LibSPN: A Library for Learning and Inference with Sum-Product Networks and TensorFlow”. In: *ICML 2017 Workshop on Principled Approaches to Deep Learning*. 2017.
- A. Pronobis**, F. Riccio, and R. P. N. Rao. “Deep Spatial Affordance Hierarchy: Spatial Knowledge Representation for Planning in Large-scale Environments”. In: *RSS 2017 Workshop on Spatial-Semantic Representations in Robotics*. 2017.
- A. Pronobis** and R. P. N. Rao. “Learning Deep Generative Spatial Models for Mobile Robots”. In: *RSS 2017 Workshop on Spatial-Semantic Representations in Robotics*. 2017.
- K. Zheng, **A. Pronobis**, and R. P. N. Rao. “Learning Semantic Maps with Topological Spatial Relations Using Graph-Structured Sum-Product Networks”. In: *IROS 2017 Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics*. 2017.
- A. Pronobis**, F. Riccio, and R. P. N. Rao. “Deep Spatial Affordance Hierarchy: Spatial Knowledge Representation for Planning in Large-scale Environments”. In: *ICAPS 2017 Workshop on Planning and Robotics*. 2017.

- J. Ekekrantz, **A. Pronobis**, J. Folkesson, and P. Jensfelt. “Enabling Efficient Registration using Adaptive Iterative Closest Keypoint”. In: *IROS 2013 Workshop on Planning, Perception and Navigation for Intelligent Vehicles*. 2013.
- C. Matuszek*, **A. Pronobis***, L. Zettlemoyer, and D. Fox. “Combining World and Interaction Models for Human-Robot Collaborations”. In: *AAAI 2013 Workshop on Intelligent Robotic Systems*. 2013.
- G. Manno, **A. Pronobis**, and B. Rasolzadeh. “Productify - Product Recognition in the Wild”. In: *CVPR 2012 Vision Industry and Entrepreneur Workshop (VIEW)*. 2012.
- A. Pronobis** and P. Jensfelt. “Multi-modal Semantic Mapping”. In: *RSS 2011 Workshop on Grounding Human-Robot Dialog for Spatial Tasks*. 2011.
- A. Aydemir, **A. Pronobis**, K. Sjöo, M. Göbelbecker, and P. Jensfelt. “Object Search Guided by Semantic Spatial Knowledge”. In: *RSS 2011 Workshop on Grounding Human-Robot Dialog for Spatial Tasks*. 2011.
- M. Göbelbecker, A. Aydemir, **A. Pronobis**, K. Sjöo, and P. Jensfelt. “A Planning Approach to Active Visual Search in Large Environments”. In: *AAAI 2011 Workshop on Automated Action Planning for Autonomous Mobile Robots (PAMR)*. 2011.
- A. Pronobis**, K. Sjöo, A. Aydemir, A. N. Bishop, and P. Jensfelt. “A Framework for Robust Cognitive Spatial Mapping”. In: *2009 Swedish Workshop on Autonomous Robots (SWAR)*. 2009.
- A. Pronobis** and B. Caputo. “The More you Learn, the Less you Store: Memory-Controlled Incremental SVM”. In: *ECCV 2006 2nd International Cognitive Vision Workshop (ICVW)*. 2006.

Theses

- A. Pronobis**. “Semantic Mapping with Mobile Robots”. PhD thesis. KTH Royal Institute of Technology, 2011.
- A. Pronobis**. “Indoor Place Recognition Using Support Vector Machines”. Master’s thesis. KTH Royal Institute of Technology, 2005.

SOFTWARE	<i>LibSPN</i>	2017
	Library for learning and inference with Sum-Product Networks and TensorFlow. www.libspn.org	
	<i>Semantics-Aware Robotic Assistant (SARA)</i>	2016
	Large, integrated software platform based on the Robot Operating System (ROS) for semantic spatial understanding on a mobile robot operating in large human environments. www.github.com/pronobis/sara	
	<i>Productify</i>	2013
	Mobile application employing computer vision and machine learning for recognizing and discovering visually similar apparel products. www.pronobis.pro/projects/productify	
	<i>Dora Mobile Robot System: Categorical.SA and Conceptual.SA</i>	2012
	Software stacks implementing multi-modal semantic mapping for a mobile robot.	
	<i>LibCRFH</i>	2010
	Library implementing Composed Receptive Field Histogram image descriptors. www.pronobis.pro/software/libcrfh	
	<i>Explorer Mobile Robot System: Semantic Annotation of Space</i>	2009
	Software stack implementing multi-modal place categorization for a mobile robot. www.pronobis.pro/software/semantic-annotation-demo	

DATASETS	Cognitive rObot Localization Database (COLD2) www.colddb.org	2017
	COsy Localization Database (COLD1) www.pronobis.pro/data/cold1	2009
	Image Database for rObot Localization (IDOL) www.pronobis.pro/data/idol	2006
	Indoor Environment under Changing conditionS (INDECS) www.pronobis.pro/data/indecs	2005

ADVISING

Co-advised Ph.D. Students

<i>Junha Roh</i> , Ph.D. Student, UW	Apr 2017–Present
<i>Francesco Riccio</i> , Visiting Ph.D. Student, UW	Oct 2016–Apr 2017
<i>Michael Jae-Yoon Chung</i> , Ph.D. Candidate, UW	Jun 2014–Jun 2015
<i>Johan Ekekrantz</i> , Ph.D. Candidate, KTH	Jan 2012–Feb 2013
<i>Alper Aydemir</i> , Ph.D. 2012, KTH	Jul 2011–Nov 2012

Advised M.Sc. and B.Sc. Theses

<i>Kaiyu Zheng</i> , UW “Learning Large-Scale Semantic Maps with Sum-Product Networks” Shortlisted for the UW CSE Best Senior Thesis Award.	B.Sc. 2017
<i>Kousuke Ariga</i> , UW “Semi-Supervised Spatial Knowledge Transfer with Deep Generative Models” Shortlisted for the UW CSE Best Senior Thesis Award.	B.Sc. 2017
<i>Björgvin Ólafsson</i> , KTH, OculusAI “Partially Observable Markov Decision Processes for Faster Object Recognition”	M.Sc. 2016
<i>Andreas Bruse</i> , KTH, OculusAI “Exploiting Cloud Resources For Semantic Scene Understanding On Mobile Robots”	M.Sc. 2015
<i>Nima Behzad</i> , KTH “Modeling 3D Object Context”	M.Sc. 2013
<i>Nikolaus Demmel</i> , KTH “Detecting Novel Concepts in Semantic Mapping with Mobile Robots”	B.Sc. 2012
<i>André Susano Pinto</i> , KTH “Novelty Detection for Semantic Place Categorization”	M.Sc. 2011
<i>Li Xing</i> , KTH “Multi-cue Visual Place Classification for Mobile Robotic Systems”	M.Sc. 2010
<i>Muhammad Muneeb Ullah</i> , KTH “Vision-based Indoor Place Recognition using Local Features”	M.Sc. 2007
<i>Jie Luo</i> , KTH “Incremental Learning for Adaptive Visual Place Recognition in Dynamic Environments” Best Master’s Thesis Award of the Swedish AI Society.	M.Sc. 2007

TEACHING	<p>Instructor/Lecturer, KTH Royal Institute of Technology 2012 <i>EL2310 Scientific Programming</i> Designed and taught a master level course consisting of 16 lectures, three lab sessions, and three individual projects per student.</p> <p>Project Instructor, University of Washington 2014–2017 <i>CSE498 Research Projects</i> <i>CSE499 Reading and Research</i> Organized and taught a project course for 12 undergraduate students in robotics focusing on development of components of a mobile robot system.</p> <p>Project Instructor, KTH Royal Institute of Technology 2009–2012 <i>DD2463 Advanced Individual Course in Computer Science</i> Coordinated four individual student projects in computer science.</p> <p>Teaching Assistant, KTH Royal Institute of Technology 2010, 2011 <i>DD2425 Robotics and Autonomous Systems</i> Course organized as a contest between groups of students designing, building, and programming mobile robots for search and rescue scenarios.</p>
INVITED TALKS	<p>“From Semantic World Understanding to Collaboration with Deep Representations”. In: <i>IROS 2018 Workshop on Language and Robotics</i>. 2018.</p> <p>“Representing and Exploiting Semantic Spatial Knowledge in Robotics”. In: <i>IROS 2016 Workshop on Integrating Multiple Knowledge Representation and Reasoning Techniques in Robotics</i>. 2016.</p> <p>“Semantic Perception and Mapping for Service Robots”. In: <i>ICRA 2012 Workshop on Semantic Perception and Mapping for Knowledge-enabled Service Robotics</i>. 2012.</p>
ORGANIZED EVENTS	<p>Workshops</p> <p><i>ICML 2017</i> Workshop on Principled Approaches to Deep Learning Aug 2017 The most popular workshop at ICML 2017 with the attendance of over 200 people. www.padl.ws</p> <p>3rd <i>ICRA</i> Workshop on Semantic Perception, Mapping, and Exploration May 2013 www.spme.ws/2013</p> <p>2nd <i>IROS</i> Workshop on Active Semantic Perception Oct 2012 www.activeperception.org/2012</p> <p>2nd <i>ICRA</i> Workshop on Semantic Perception, Mapping, and Exploration May 2012 www.spme.ws/2012</p> <p>1st <i>IROS</i> Workshop on Active Semantic Perception Oct 2011 www.activeperception.org/2011</p> <p><i>IROS 2010</i> Robot Vision Workshop Oct 2010 www.robotvision.info</p> <p>Competitions</p> <p>ImageCLEF 2010 Robot Vision Challenge (3rd Edition) Feb 2010 www.imageclef.org/2010/robot</p> <p>ICPR 2010 Robot Vision Contest (2nd Edition) Nov 2009 www.imageclef.org/2010/icpr/RobotVision</p> <p>ImageCLEF 2009 Robot Vision Challenge (1st Edition) Feb 2009 www.imageclef.org/2009/robot</p>

SERVICE**Editorial Appointments**

Associate Editor, 2019 International Conference on Robotics and Automation (ICRA) 2018
Associate Editor, 2018 International Conference on Robotics and Automation (ICRA) 2017
Associate Editor, 2015 International Conference on Robotics and Automation (ICRA) 2014
Associate Editor, Paladyn, Journal of Behavioral Robotics 2009–2010

Program Committees

ECCV 2014 Workshop on Consumer Depth Cameras for Computer Vision Sep 2014
 AAAI 2014 Workshop on Artificial Intelligence and Robotics Jul 2014
 AAAI Spring Symposium 2014: Qualitative Representations for Robots Mar 2014

Conference Reviewing

Robotics: Science and Systems (RSS), International Conference on Intelligent Robots and Systems (IROS), International Conference on Robotics and Automation (ICRA), European Conference on Mobile Robotics (ECMR)

Journal Reviewing

International Journal of Robotics Research (IJRR), Transactions on Robotics (T-RO), Robotics and Autonomous Systems (RAS), Autonomous Robots (AURO)

Grant Reviewing

University of Washington Royalty Research Fund 2015

Chairing

Chair, IROS session “RGBD Perception” 2017
Co-chair, IROS session “Deep Learning in Robotics and Automation” 2017

Outreach

Coordinator, Robotics session during the *UW High School Girls’ Summer Camp* 2014

LANGUAGES

English (fluent)
 Polish (native)

PERSONAL INTERESTS

Rock and ice climbing, training climbers, building custom robot hardware, contributing to open source software projects, classical music

REFERENCES

Available upon request.