

CONTACT INFORMATION	✉ mihai@andries.eu 🏠 http://mihai.andries.eu	in LinkedIn profile 🎓 Google Scholar profile
RESEARCH INTERESTS	Machine learning, Cognitive robotics, Cognitive architectures, Autonomous intelligent systems, Ambient intelligence, Automated design, Simulation.	
EDUCATION	Ph.D. in Computer Science, Artificial Intelligence Oct 2012 – Dec 2015 Thesis: <i>Object and human tracking, and robot control through a load sensing floor</i> Université de Lorraine, Nancy, France	
	Master in Computer Science Sept 2010 – Sept 2012 Software and Information Engineering Thesis: <i>Distributed algorithms for multi-robot exploration of structured environments.</i> Université de Strasbourg, Strasbourg, France	
	Licence (B.Sc.) in Computer Science Sept 2007 – June 2010 Université de Strasbourg, Strasbourg, France	
PROFESSIONAL EXPERIENCE	Research engineer, 3D & Machine learning Aug 2020 – present Dassault Systèmes (3DS), Vélizy-Villacoublay, France	
	Postdoctoral researcher May 2019 – April 2020 Inria — French National Institute for Research in Computer Science and Automation LARSEN team, Nancy, France Advisor: Serena Ivaldi, Chargée de recherche	
	<ul style="list-style-type: none"> • Automatic generation of a dataset of 3D object models to evaluate and train robotic grasping algorithms using generative Deep Learning models (HEAP project). • Supervision of a PhD student working on integration of human preference into robotic grasping. • Tools: Python, Jupyter Notebook, TensorFlow, DexNet, BinVox, TriMesh, V-HACD, MAP-Elites, Matplotlib, SolidWorks, CURA (3D printing), G-code. 	
	Postdoctoral researcher Apr 2017 – Apr 2019 Institute for Systems and Robotics (ISR-Lisboa) Instituto Superior Técnico (IST), Universidade de Lisboa, Lisbon, Portugal Advisor: José Santos-Victor, Full Professor (IST)	
	<ul style="list-style-type: none"> • Automatic generation of 3D object models satisfying functional requirements using generative Deep Learning models. • Testing object affordances in simulation. • Autonomous learning of object affordances for cognitive robotics. • Drafting national (FCT) and European (H2020) research project proposals. • Supervising a Master student working on affordance testing. • Tools: Python, TensorFlow, Gazebo, BinVox, TriMesh, ROS, Baxter robot, iCub robot, LaTeX. 	
	Founder Mar 2017 – present Andries Labs S.R.L., Chişinău, Moldova	
	<ul style="list-style-type: none"> • Development of jurnyz.com, a traveller-oriented website for logging journeys. • Tools: HTML, CSS, Javascript, PHP, SQL, D3JS, GeoJSON, AJAX, REST. 	
	Postdoctoral researcher Jan–Dec 2016 CNRS, Institute for Intelligent Systems and Robotics (ISIR) Université Pierre-et-Marie-Curie (Paris VI), Paris, France Advisor: Raja Chatila, Directeur de recherche (CNRS)	

Project: *RoboErgoSum*, French National Research Agency (ANR)

- Research on cognitive architectures for perception, learning, reasoning and action planning.
- Research on perception and knowledge grounding in robotics.
- Supervision of a PhD student working on Planning in Artificial Intelligence.
- Tools: C++, ROS, R, Baxter robot.

Project: *Spencer*, European Research Project, Cognitive Systems and Robotics

- Group detection in densely populated environments for social robotics.
- Tools: C++, ROS, MATLAB.

Doctoral Researcher

Oct 2012 – Dec 2015

Inria — French National Institute for Research in Computer Science and Automation

Autonomous intelligent machines (MAIA) and LARSEN teams, Nancy, France

Thesis: *Object and human tracking, and robot control through a load sensing floor*

Advisors: François Charpillet, Directeur de recherche (Inria)

Olivier Simonin, Professor of Computer Science (INSA Lyon, France)

- Ambient intelligence applied to healthcare (elderly care), involving a distributed load sensor located under a floor.
- Detection, recognition and tracking of humans and objects in the environment using a load-sensing floor.
- Robotic navigation in environments with ground pressure sensors.
- Tools: Java, ROS, gnuplot.

Research Intern

Feb 2012 – July 2012

Inria, Autonomous intelligent machines team (MAIA), Nancy, France

Supervisor: François Charpillet, Directeur de recherche (Inria)

Project: *Cartography of a territory by a robot (CAROTTE)*, national joint project of the French National Research Agency (ANR) and the French General Directorate for Armament (DGA)

- Research and development of multi-agent exploration algorithms for robotic search-and-rescue missions.
- Tools: Java, gnuplot.

Software R&D Intern

Sept 2010 – Jan 2012

PSA Peugeot Citroën

Telematics Architecture and Software Specification team, Sochaux, France

- Development of a methodology for designing UML/SysML models of software architectures for vehicles.
- Implemented networking functionalities for a Controller Area Network (CAN) driver, for connecting real and simulated car components.
- Tools: C, UML/SysML, Sparx Enterprise Architect, Atego Artisan Studio, IBM Rational Rhapsody, Qt, Agile development, Scrum.

TEACHING
EXPERIENCE

Qualification Maître de Conférences (France)

Feb 2017 – Dec 2021

Section 27 - Computer Science

Teaching assistant at TELECOM Nancy

Oct 2012 – Sep 2014

Courses: Techniques and Tools for Programming, Compilation, Graphs and Operational Research, Artificial Intelligence.

ADMINISTRATIVE
EXPERIENCE

Organiser of the Journal Club

Mar–Dec 2016

weekly sessions for presenting and discussing scientific publications in the Institute for Intelligent Systems and Robotics (ISIR) laboratory (Paris, France)

Elected representative

Mar–Dec 2015

of doctoral researchers, post-docs, contract engineers and contract researchers in the LORIA laboratory council (Nancy, France)

	Appointed representative Jan–Dec 2015 of doctoral researchers, post-docs, contract engineers and contract researchers in the council of the Inria Nancy research center (Nancy, France)
VOLUNTEERING EXPERIENCE	Communication officer Apr 2017 – present MentorMe mentorship programme for Moldovan high-school graduates and undergraduate university students seeking to pursue their university education abroad. Programme manager Mar 2016 – Mar 2017 MentorMe mentorship programme <ul style="list-style-type: none"> • Drafting the specification for the MentorMe online platform • Fundraising: jointly preparing and submitting grant proposals to national funding organisms (e.g. Biroul Relații cu Diaspora) • Community management: processing join/leave requests from members • Activity reporting to the founder of the mentorship programme • Team management (3 volunteers: operations, communication, fundraising) Software developer Aug 2010 On-line dictionary of library science terminology Designed and developed the software for an on-line dictionary of library science terminology for the National Library of the Republic of Moldova
SOFTWARE SKILLS	Programming languages: Python, Java, C, C++, OCaml, Pascal, assembly Scientific software: L^AT_EX , gnuplot, Maple, MPI, CUDA Machine Learning software: TensorFlow , Octave, Jupyter Notebook Robotics software: ROS , YARP Software Architecture: UML, SysML, Sparx Enterprise Architect, Atego Artisan Studio, IBM Rational Rhapsody, Qt Software Verification: Coq theorem prover, Frama-C Compilation: Lex , Yacc , ANTLR Databases: SQL, PL/SQL Web Development: HTML, CSS, JavaScript, PHP Computer-Aided Design: SolidWorks, CURA, G-code
LANGUAGE SKILLS	English: fluent (IELTS overall band score: 8/9, September 2011) French: fluent (DALF C1, 2006) Romanian: native speaker Russian: native speaker Italian: intermediate German: beginner Portuguese: beginner
STUDENT SUPERVISION	<ul style="list-style-type: none"> • Yoann Fleytoux (PhD; informal supervision) on robotic grasping. (2019.05–2020.04) • Rui Maia (MSc), <i>Testing object affordances in Gazebo</i> (2019.03–07) • Raphaël Gottstein (PhD; informal supervision) on planning in robotics (2016.04–10)
PHD THESIS	[1] <i>Object and human tracking, and robot control through a load sensing floor</i> Mihai Andries , Ph.D. thesis, Université de Lorraine (2015)
WORK IN PROGRESS	[2] AGOD-Grasp: An automatically generated object dataset for benchmarking and training robotic grasping algorithms Mihai Andries , Jean-Baptiste Mouret, Serena Ivaldi <i>(paper in preparation)</i> [3] Object affordance evaluation library Mihai Andries

- [4] Automatic generation of object shapes with desired affordances using voxelgrid representation
Mihai Andries, Atabak Dehban, José Santos-Victor
Frontiers in Neurorobotics, 2020
- [5] Toward Self-Aware Robots
Raja Chatila, Erwan Renaudo, Mihai Andries, Ricardo Omar Chavez-Garcia, Pierre Luce-Vayrac, Raphaël Gottstein, Rachid Alami, Aurélie Clodic, Sandra Devin, Benoît Girard, Mehdi Khamassi
Frontiers in Robotics and AI, 2018
- [6] Affordance equivalences in robotics: a formalism
Mihai Andries, Ricardo Omar Chavez-Garcia, Raja Chatila, Alessandro Giusti, Luca M. Gambardella
Frontiers in Neurorobotics, 2018
- [7] Localisation of humans, objects and robots interacting on load-sensing floors
Mihai Andries, François Charpillet, Olivier Simonin
IEEE Sensors Journal, 2016

- [8] Discovering and Manipulating Affordances
Ricardo Omar Chavez-Garcia, Mihai Andries, Pierre Luce-Vayrac, Raja Chatila
International Symposium on Experimental Robotics (ISER 2016)
- [9] Modeling the dynamics of individual behaviors for group detection in dynamic crowds using low-level features
Omar Adair Islas Ramírez, Giovanna Varni, Mihai Andries, Mohamed Chetouani, Raja Chatila
IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2016)
* Best paper nominee, Technical Category
- [10] Probabilistic sensor data processing for robot localisation on load-sensing floors
Maxime Rio, Francis Colas, Mihai Andries, François Charpillet
Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (ICRA 2016)
- [11] Multi-robot taboo-list exploration of unknown structured environments
Mihai Andries, François Charpillet
Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2015)
- [12] High resolution pressure sensing using sub-pixel shifts on low resolution load-sensing tiles
Mihai Andries, François Charpillet, Olivier Simonin
Proceedings of IEEE International Conference on Robotics and Automation (ICRA 2015)
- [13] Multi-robot exploration of unknown environments with identification of exploration completion and post-exploration rendez-vous using ant algorithms
Mihai Andries, François Charpillet
Proceedings of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2013)

- [14] Generating object shapes with desired affordances
Mihai Andries, Atabak Dehban, José Santos-Victor
2nd International Workshop on Computational Models of Affordance in Robotics (at ICRA 2019)
- [15] From Perception and Manipulation to Affordance Formalization
Ricardo Omar Chavez-Garcia, Mihai Andries, Pierre Luce-Vayrac, Raja Chatila
Workshop on Machine Learning Methods for High-Level Cognitive Capabilities in Robotics (ML-HLCR at IROS 2016)

- [16] [High resolution pressure sensing using sub-pixel shifts on low resolution load-sensing tiles](#)
[Mihai Andries](#), François Charpillet, Olivier Simonin
Workshop "Get in touch!" Tactile & force sensing for autonomous, compliant, intelligent robots (at ICRA 2015)

SCIENTIFIC
PRESENTATIONS

- Dassault Systèmes
Vélizy-Villacoublay, France, 25 March 2020
Topic: *Automatic generation of object shapes with desired affordances using voxelgrid representation*
- HEAP project meeting, University of Lincoln
Lincoln, England, United Kingdom, 21 November 2019
Topic: *Generated dataset of object models for evaluating robotic grasping abilities*
- University of Plymouth
Plymouth, England, United Kingdom, 26 February 2019
Topic: *Automatic generation of object shapes with desired functionalities*
- [Ciência 2018](#) — Science and Technology Summit in Portugal
Lisbon Congress Center, Lisbon, Portugal, 2-4 July 2018
Poster: *Automatic generation of object shapes with desired functionalities*
- [Associate Laboratory of Robotics and Engineering Systems \(LARSyS\)](#) seminar
Pavilhão do conhecimento, Lisbon, Portugal, 14-15 June 2018
Topic: *Automatic generation of object shapes with desired functionalities*
- [Instituto de Sistemas e Robótica, Instituto Superior Técnico](#)
Lisbon, Portugal, 19 December 2016
Topic: *Affordance learning for knowledge grounding*
- [Personally Assisted Living workshop](#) (2014)
Inria Bordeaux Sud-Ouest, Bordeaux, France, 9–10 July 2014
Topic: *Detection, tracking and recognition of objects using a load-sensing floor*
- [Personally Assisted Living workshop](#) (2013)
Inria Rennes - Bretagne Atlantique, Rennes, France, 10–12 July 2013
Topic: *Contribution à l'évaluation de la fragilité chez la personne âgée par un système de dalles intelligentes et un réseau de cameras Kinect* (presented together with Abdallah Dib)
- [University of Freiburg, Freiburg im Breisgau, Germany](#), 4 May 2012
[Autonomous Intelligent Systems laboratory](#)
Topic: *Coverage of an unknown structured environment by a set of robots: from ants to frontier-exploration methods*

DISSEMINATION OF
SCIENTIFIC
KNOWLEDGE

- [MentorMe Lab panel discussion on Machine Learning](#) (in Romanian)
Viewed by 2830 people on Facebook as of 17 April 2020
Published live on 04 April 2020
- [MentorMe interview](#) about my education, career path, and research in cognitive robotics (in Romanian)
Viewed by 2500 people on Facebook as of 17 April 2020
Published on 24 January 2019
- [Renaissance Nancy](#)
Scientific vulgarisation event organised by the municipal administration
Represented the MAIA research team at its exhibition stand (3 days)
Nancy, France, May 2013

WINTER AND SUMMER SCHOOLS ATTENDED	<ul style="list-style-type: none"> • International Winter School on Humanoid Robot Programming (6–15 February 2018, Santa Margherita Ligure, Genoa, Italy) • Summer School on Law and Logic (13–18 July 2015, Florence, Italy) • Global Young Scientists Summit (18–23 January 2015, Singapore) • Advanced Course on Artificial Intelligence (<i>ACAI 2011</i>): summer school on Automated Planning and Scheduling (7–10 June 2011, Freiburg im Breisgau, Germany)
ONLINE COURSES ATTENDED	<ul style="list-style-type: none"> • Control of Mobile Robots, online course provided by Georgia Institute of Technology on Coursera (Feb 2019) • Machine Learning, online course provided by Stanford University on Coursera (Jan–Feb 2017) • Philosophy and the Sciences, online course provided by the University of Edinburgh on Coursera (Oct–Dec 2014) • Introduction to Philosophy, online course provided by the University of Edinburgh on Coursera (Jan–Mar 2013) • Introduction to Artificial Intelligence (<i>advanced track</i>), online course given by Prof. Sebastian Thrun and Prof. Peter Norvig (Oct–Dec 2011)
PROFESSIONAL SERVICE	<p>Workshop organisation</p> <ul style="list-style-type: none"> • Perception and Modelling for Manipulation of Objects (PaMMO) workshop International Conference on Pattern Recognition (ICPR) 2020 (with Markus Vincze, Andrea Cavallaro, Berk Calli, Krystian Mikolajczyk) <p>Reviewing for research funding institutions</p> <ul style="list-style-type: none"> • Agence Nationale de la Recherche (France) Reviewed for ANR in 2017 <p>Reviewing for scientific journals</p> <ul style="list-style-type: none"> • Adaptive Behavior (2018, 2019) • Autonomous Robotics (2017) • Frontiers in Robotics and AI (2020) • IEEE Robotics and Automation Letters (2020) • IEEE Transactions on Robotics (2015, 2017) • MDPI Systems (2020) • Robotics and Autonomous Systems (2014) • Sensors & Actuators (2018) <p>Reviewing for scientific conferences</p> <ul style="list-style-type: none"> • IEEE International Conference on Robotics and Automation (ICRA) Reviewed for ICRA 2017, 2018 • IEEE/RSJ International Conference on Intelligent Robots (IROS) Reviewed for IROS 2015, 2017, 2020 • International Symposium on Experimental Robotics (ISER) Reviewed for ISER 2020
AWARDS AND DISTINCTIONS	<ul style="list-style-type: none"> • Face the robot challenge (placed 4-28 out of 58 submissions) Prize: 200 euro, for the entry <i>Browey</i> (in collaboration with Hugo Simão) Organised by the Honda Research Institute Europe (2017.10.22) • Selected to participate in the Research Opportunities Week (ROW) at the Technical University of Munich (TUM) (20-24 March 2017) • Best Paper Nominee, Technical Category (top 5%), RO-MAN 2016 <i>"Modeling the dynamics of individual behaviors for group detection in dynamic crowds using low-level features."</i> • Award for Academic Excellence for Moldavian students studying abroad (Doctorate level), Government of the Republic of Moldova (<i>Gala studenților originari din Republica Moldova, 2015</i>) • Selected as an Inria representative for the Global Young Scientists Summit 2015 (18-23 January 2015, Singapore)

- AWARDED GRANTS
- NVIDIA GPU grant: Titan Xp GPU (value: \$1200, 12 February 2018) (together with Atabak Dehban and Prof. José Santos-Victor)
 - Fundação para a Ciência e Tecnologia (FCT) postdoctoral research grant (Portugal, 2017.04–2019.04)
 - Inria CORDI-S doctoral research grant (France, 2012.10–2015.10)
 - ECCAI 2012 travel grant
 - IJCAI 2011 travel grant
 - ECCAI 2011 travel grant

- MEMBERSHIPS
- Member of the [IEEE Technical Committee on Cognitive Robotics](#) — IEEE Robotics and Automation Society (since May 2016)
 - French Association for Artificial Intelligence (AFIA, 2011–2015)