Anastasia Bolotnikova

Curriculum Vitae

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anastasiabolotnikova
Date of birth: 12.12.1993 (29)
Nationality: Estonian

Work and Education

2021 — **Postdoctoral Researcher, Intelligent Assistive Robotics interdisciplinary project lead**, *Biorobotics Laboratory and Reconfigurable Robotics Laboratory*, EPFL, Lausanne, Switzerland

2017 – 2021 — **Robotics Researcher**, *SoftBank Robotics Europe*, Paris, France

and **PhD Student in Robotics** (CIFRE), *University of Montpelier*, Montpelier, France

2017 — **CNRS Research Engineer**, *IDH Team, LIRMM*, Montpellier, France
3 month research engineer practice

2016 – 2017 — **MSc Practice**, *IDH Team, LIRMM*, Montpellier, France
6 months Erasmus+ research practice in the Interactive Digital Humans (IDH) research group

2012 – 2017 — **BSc and MSc in Computer Science**, *University of Tartu*, Estonia
Graduated *cum laude*

Professional Skills

Programming Python, C++, R, MatLab, LaTeX, ROS

Specialization Machine Learning, Data Mining, Computer Vision, Image Processing, Human-Robot Interaction, Assistive Robotics, Modular Robotics, Humanoid Robotics, Academic Writing

Languages English, French, Estonian, Russian

Awards and Scholarships

2019 **L'Oréal-UNESCO For Women in Science Young Talents France 2019 Award**
One of 35 award recipients selected among more than 800 submitted applications

2018 **SoftBank Robotics Shanghai Innovation Prize** at 27^{th} IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2018), Nanjing, China

2017 **Best Student Paper Award** at 13^{th} IEEE International Conference on Automation Science and Engineering (CASE 2017), Xi'an, China

2016 **Dr. Kanako Miura Travel Support Award** to attend the 16^{th} IEEE International Conference on Humanoid Robotics (Humanoids 2016)

3^{rd} place in the Master Projects Competition of Computer Science Faculty of University of Tartu for the project work "Using the Field Edge as a Localization Landmark in the Robot Soccer"

2015 **Skype and Study IT in Estonia program scholarship**
One of eight scholarship recipients selected in the Estonian national call for scholarship applications

2^{nd} place in the Bachelor Projects Competition of Computer Science Faculty of University of Tartu for the bachelor thesis work "Melioration of color calibration, goal detection and self-localization systems of NAO humanoid robots"

Invited talks

2020 Guest speaker presentation titled "Humanizing the digital revolution of caregiving", at the 5^{th} joint UAE Symposium on Social Robotics (JSSR 2020) at the College of Information Technology (CIT) at United Arab Emirates University (UAEU), Al Ain, United Arab Emirates, 3-4 February 2020

Symposium website

List of Publications

Total: 19, Journal: 6, Conference: 10; Workshop: 3

2022 K. Holdcroft, **A. Bolotnikova**, C. H. Belke, J. Paik, "Modular Robot Networking: A Novel Schema and Its Performance Assessment ," in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022), 23-27 October 2022, Kyoto, Japan

F. M. Conzelmann, L. Huber, D. Paez-Granados, **A. Bolotnikova**, A. Ijspeert, A. Billard, "A Dynamical System Approach to Decentralized Collision-free Autonomous Coordination of a Mobile Assistive Furniture Swarm," in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022), 23-27 October 2022, Kyoto, Japan

2021 **A. Bolotnikova**, S. Courtois, and A. Kheddar, "Adaptive Task-Space Force Control for Humanoid-to-Human Assistance," in IEEE Robotics and Automation Letters, 6(3), pp. 5705-5712, 28 May 2021

Journal publication link | Open access link

A. Bolotnikova, P. Gergondet, A. Tanguy, S. Courtois, and A. Kheddar, "Task-Space Control Interface for SoftBank Humanoid Robots and its Human-Robot Interaction Applications," in IEEE/SICE International Symposium on System Integration (SII 2021), 11-14 January 2021, Iwaki, Fukushima, Japan

Conference publication link | Open access link | Project code link

2020 **A. Bolotnikova**, "Bridging the Gap between the Open-source Task-Space Constraint-Based Control Framework and Real-World Human-Robot Interaction Applications," accepted for presentation at CobaRoP workshop at the IEEE/RSJ International Conference on Robots and Systems (IROS 2021), 25 October – 25 November 2020, online conference

A. Bolotnikova, S. Courtois, and A. Kheddar, "Autonomous Initiation of Human Physical Assistance by a Humanoid," in 29th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), 31 August – 4 September 2020, Napoli, Italy.

Conference publication link | Open access link | Video link | Project code link

2019 **A. Bolotnikova**, S. Courtois, and A. Kheddar, "Multi-Contact Planning on Humans for Physical Assistance by Humanoid," in IEEE Robotics and Automation Letters, 5(1), pp. 135-142, 17 October 2019

Journal publication link | Open access link

A. Bolotnikova, S. Courtois, and A. Kheddar, "Multi-Contact Posture Computation on Humans Point Cloud," at *Meet the Women in Robotics V Workshop* (WiR V, Robotics: Science & Systems Conference), 23 June 2019, Freiburg, Germany

Workshop link

2018 **A. Bolotnikova**, S. Courtois, and A. Kheddar, "Compliant Robot Motion Regulated via Proprioceptive Sensor Based Contact Observer," in IEEE-RAS 18th International Conference on Humanoid Robots (Humanoids), pp. 1–9, 6–9 November 2018, Beijing, China

Conference publication link | Open access link | Video link

A. Bolotnikova, S. Courtois, and A. Kheddar, "Contact Observer for Humanoid Robot Pepper based on Tracking Joint Position Discrepancies," in 27th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN), pp. 29–34, 27–31 August 2018, Nanjing, China, *** received SoftBank Robotics Shanghai Prize**

Conference publication link | Open access link | Video link

A. Paolillo, K. Chappellet, **A. Bolotnikova**, and A. Kheddar, "Interlinked Visual Tracking and Robotic Manipulation of Articulated Objects," IEEE Robotics and Automation Letters, vol. 3, pp. 2746–2753, 11 May 2018

Journal publication link | Open access link | Video link

P. Rasti, I. Lüsi, **A. Bolotnikova**, M. Daneshmand, C. Ozcinar, and G. Anbarjafari, "Optimal image compression via block-based adaptive colour reduction with minimal contour effect," Multimedia Tools and Applications, vol. 77, pp. 30939–30968, 2 June 2018

Journal publication link

2017 A. Paolillo, **A. Bolotnikova**, K. Chappellet, and A. Kheddar, "Visual Estimation of Articulated Objects Configuration during Manipulation with a Humanoid," in IEEE/SICE International Symposium on System Integration (SII), pp. 330–335, 11–14 December 2017, Taipei, Taiwan

Conference publication link | Open access link | Video link

A. Bolotnikova, "Semantic Edge Detection," at *Workshop on ARtificial Perception, MAchine Learning and DAtasets for Human-Robot Interaction* (ARMADA'17, IEEE RO-MAN), pp. 13–15, 1 September 2017, Lisbon, Portugal

Workshop proceedings link

M. Daneshmand, O. Bilici, **A. Bolotnikova**, and G. Anbarjafari, "Medical robots with potential applications in participatory and opportunistic remote sensing: A review," Robotics and Autonomous Systems, vol. 95, pp. 160–180, September 2017

Journal publication link

A. Bolotnikova, K. Chappellet, A. Paolillo, A. Escande, G. Anbarjafari, A. Suarez-Roos, P. Rabate, and A. Kheddar, "A circuit-breaker use-case operated by a humanoid in aircraft manufacturing," in 13th IEEE Conference on Automation Science and Engineering (CASE), pp. 15–22, 20–23 August 2017, Xi'an, China, *** received Best Student Paper Award**

Conference publication link | Open access link | Video link

2016 K. Tarvas, **A. Bolotnikova**, and G. Anbarjafari, "Edge information based object classification for NAO robots," Cogent Engineering, vol. 3, pp. 1–16, 5 December 2016

Journal publication link

2015 **A. Bolotnikova**, P. Rasti, A. Traumann, I. Lüsi, M. Daneshmand, F. Noroozi, K. Samuel, S. Sarkar, and G. Anbarjafari, "Block based image compression technique using rank reduction and wavelet difference reduction," in 7th International Conference on Graphic and Image Processing (ICGIP), vol. 9817, p. 981702, 23–25 October 2015, Singapore

Conference publication link

2014 P. Rasti, I. Lüsi, A. Sahakyan, A. Traumann, **A. Bolotnikova**, M. Daneshmand, R. Kiefer, A. Aabloo, G. Anbarjafar, H. Demirel, and C. Ozcinar, "Modified back projection kernel based image super resolution," in 2nd International Conference on Artificial Intelligence, Modelling and Simulation (AIMS), pp. 161–165, 18–20 November 2014, Madrid, Spain

Conference publication link

Mentions in Press

2020 "Tout un Programme" by Lucie Lecherbonnier in "LUM : le magazine science et société de l'UM", p. 30, March-June 2020

2019 "Anastasia et Pauline, les heureuses lauréates montpelliéraines de la bourse L'Oréal-Unesco" in "Midi Libre", Sciences et techniques, Hérault, Montpellier, October 2019

"Des robots, des hommes... et trop peu de femmes !" by Sophie Viguier-Vinson in "Somme Toutes - L'Express L'Expansion", 8 October 2019

"Prantsusmaal roboteid arendav Eesti naisteadlane pälvis suure stipendiumi" by Liisbet Saue in "DELFI - Lood", 11 November 2019

2017 "Une femme aux manettes de HRP-4, un des robots les plus évolués au monde" in Digital Festival Tahiti, 16 March 2017

2015 "Robotitega Hiinas jalgpalli mängimas" in University of Tartu (UT) magazine, nr. 8 pp. 39–41, September 2015

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