Karla Štěpánová

Researcher, Head of Robotics Perception Group

Jugoslávských partyzánů 3, 160 00 Prague, CZ| +420 607222875 | karla.stepanova@cvut.cz | http://karlastepanova.cz
|ORCID: https://orcid.org/0000-0003-4239-2092 | LinkedIn: linkedin.com/in/karla-štěpánová-78aa1b35

Professional Profile

I am an interdisciplinary researcher specializing in **developmental and cognitive robotics** with a focus on how humans acquire language, communicate, and learn novel tasks. In my work, I develop robots that leverage insights from human cognition to learn efficiently, interpret multimodal human commands, and adapt to unfamiliar circumstances. By advancing the ability of robots to comprehend their environments and interact seamlessly with people, I aim to bridge the gap between human and robotic understanding. The ultimate goal of my research is to enable **trustworthy and efficient human-robot collaboration**, with impact in areas such as small-batch manufacturing and assistance in home/eldercare environments. Methodologically, my work employs **self-supervised learning, optimization techniques, and hierarchical probabilistic models** to capture processes of learning, knowledge acquisition, and task execution. I lead the Robotics Perception Group (ROP). Beyond research, I believe that sharing our research with society is an essential part of being a scientist. Scientific results don't have to make an impact only once they turn into new technologies—they can also bring people joy, new insights, or a spark of curiosity. I enjoy taking part in outreach events, contributing to public communication through social media and supporting diversity in science, with particular emphasis on empowering women in science and engineering.

Education

2011-2017	Ph.D. in Artificial Intelligence and Biocybernetics, Czech Technical University in Prague (CTU), Faculty of Electrical Engineering, Dept. of Cybernetics, CZ. Dissertation: *Hierarchical probabilistic model of language acquisition*, Advisor: Mgr.Michal Vavrečka, Ph.D.
2008-2010	M.Sc. in Condensed Matter Physics, Charles University in Prague, Faculty of Mathematics and Physics, CZ. Thesis: *Study of conditions of crystallization and thermodynamic properties of selected intermetallic compounds of lanthanides*, Advisor: doc. RNDr. Pavel Svoboda, CSc.
2005-2008	B.Sc. in General Physics, Charles University in Prague, Faculty of Mathematics and Physics, CZ. Thesis: *Study of conditions of crystallizations of selected intermetallic compounds of lanthanides*, Advisor: doc. RNDr. Pavel Svoboda, CSc.

Professional Experience

09/2024 - present **Head of Robotics perception group**, Researcher, Robotics and Machine Perception Group, The Czech Institute of Informatics, Robotics and Cybernetics (CIIRC), CTU, CZ.
- Research focused on human-robot interaction, specifying tasks by language and gestures, task and scene representation, and interactive perception
- Head of the group managing 12 researchers, 1 technical programmer, 4 PhD students, 1 project manager, and 1 administrative support staff.
- Board member for *ROBOPROX: Robotics and Advanced Industrial Production* grant. Project website

2016 - 2024 **Researcher**, Robotics and Machine Perception Group, The Czech Institute of Informatics, Robotics and Cybernetics (CIIRC), CTU, CZ.
- Research focused on specifying tasks by language, gestures, and demonstration, robot self-calibration.
- (PI) The Czech Science Foundation (GACR) grant no. 21-31000S *Multimodal representations of robotic actions and tasks applied in learning by demonstration* (Mirracle, website), 2021-2024, Amount: 7.71 mil. CZK.
- (PI) Technology Agency of Czech Republic (TA CR) grant no. TJ01000470 *Imitation learning supported by language for industrial robotics* (website), 2017-2019, Amount: 2.988 mil.CZK.

01/2016-05/2016 **Visiting Researcher**, *CNRS, Plymouth University*, UK.
Mentor: Prof. Angelo Cangelosi
- Research focused on symbol grounding and language acquisition, implementing hierarchical model into an iCub humanoid robot.

08/2015 - 08/2016 **Research Fellow**, Faculty of Electrical Engineering, CTU in Prague, CZ. Mentor: doc. Matěj Hoffmann, Ph.D.
- Research focused on optimization techniques for robot calibration, data clustering

07/2014 **Visiting Researcher**, NCSR Demokritos, Athens, GR.
Mentor: Dr. Nikolaos Mavridis

Maternity leave, 01/2020-06/2021, 07/2010-02/2013, 02/2013-06/2016

Research Stays, Internships, Summer Schools

09/2025 **University of Freiburg Research stay (1 month stay)**: *Learning task representation from few demonstrations with human feedback*, Mentor: Dr. Abhinav Valada and Adrian Roefer, Robot Learning Lab, University of Freiburg, Freiburg, GE.

06/2023	**TU Delft Research stay (1 week):** *Interactive learning of tasks*, Dr. Jens Kober, Cognitive Robotics Department, TU Delft, NL.
01/2016-05/2016	**Plymouth University Research stay (5 months)**: *Implementation of the hierarchical model of language acquisition into the iCub robot*, *CNRS, Plymouth University*, UK. Mentor: Prof. Angelo Cangelosi
07/2014	**NCSR Demokritos Research stay (14 days):** *Ripley project*, NCSR Demokritos, Athens, GR. Mentor: Dr. Nikolaos Mavridis
12/2016	**Winter school:** *3rd Örebro Winter School on "Artificial Intelligence and Robotics"*, Örebro, SE.
07/2014	**Summer school:** *Summer school IRSS 2014*, Specialization: symbol grounding project. NCSR Demokritos, Athens, GR.

External Funding Received

Principal investigator, Co-investigator

EU Horizon	*ELLIOT:* European Large Open Multi-Modal Foundation Models For Robust Generalization On Arbitrary Data Streams, 7/2025-6/2029, EU Horizon, Amount: 23.4 mil. CZK. Role: Local co-PI
ZIM project	*EULE: Development of an innovative solution for monitoring people in need of care in their homes using modern sensor technology and ML-based data analysis*, 10/2024-03/2027 (supported by German Central Innovation program for SMIs [ZIM]). Role: Associate international partner (PI).
CTU	*MELODIC: Multimodal interactive dialogue for adaptive robotic systems (grant supported by CTU in Prague), 01/2024-12/2024. Amount: 386 360 CZK.* *Role: PI*
GACR	*Multimodal representations of robotic actions and tasks applied in learning by demonstration (grant* no. 21-31000S, *supported by the Czech Science Foundation), website*, 7/2021-6/2024. Amount: 7.71 mil. CZK Role: PI
TACR	*Imitation learning supported by language for industrial robotics (grant* no. TJ01000470, *supported by the Technological agency of ČR)*, website, 10/2017-09/2019. Amount: 2.988 mil.CZK

Role: PI

FEL CTU — Project to propagate and support study at FEE CTU in Prague "*Corresponding seminar MoRoUS for high schools*", website, 2015, 2016 and 2017.

FRVS — ***Czech Ministry of Education, Youth and Sports (MEYS), FRVS grant*** No. G3/2023, *Application for administering psychological experiments using EEG measurement*, 2012.

Team member

OP JAK — **OP JAK project** "*ROBOPROX: Robotics and advanced industrial production*", website**,** 2023-2028**.** Amount: 467.907 mil CZK
Role: group leader deputy, project Board member, leader of Women's Forum

GACR — **International Project as Lead Agency no. 23-04080L** *"Intuitive Collaboration with Household Robots in Everyday Settings" (iChores) (grant supported by Czech Science Foundation). 2023-2025, website. Amount: 7.234 mil. CZK*

TRIO — **Czech Ministry of Industry and Trade, TRIO grant**, *"Collaborative robotics workplace of the future*, 1/2019-12/2021. website, Amount: 5.578 mil. CZK

TA CR — **iPalm EU ERA,** "Interactive Perception-Action-Learning for Modelling Objects", website, 2019-2020.

GACR — *Robot self-calibration and safe physical human-robot interaction inspired by body representations in primate brains (grant supported by Czech Science Foundation)*, No.17-15697Y, 01/2017-12/2019.

EU FP7 — **EU FP7 grant**, *TRADr : Long-Term Human-Robot Teaming for Robot-Assisted Disaster Response*, No. 60963, 08/2016 – 9/2017. website.

SGS — **CTU project** *Support of interactive approaches to biomedical data acquisition and processing*, No. SGS16/231/0HK3/3T/13, sponsored by the CTU in Prague, 01/2016-09/2016

FRVS — ***MEYS, FRVS grant*** *Innovation of Neuroinformatics course*, 2013.

SGS — **CTU project** *New approaches to collection, evaluation and utilization of biological data II*, No. SGS13/203/OHK3/3T/13, sponsored by the CTU in Prague, 2013-2015.

SGS — **CTU project** *New approaches to collection, evaluation and utilization of biological data, No.SGS10/279/OHK3/3T/13, sponsored by the CTU in Prague, 2011-2012*

Teaching Activities

2013 - present	**Cognitive systems** (Kognitivní systémy, A6M33KSY), FEE, CTU, CZ. Lectures and seminars (with Dr. Michal Vavrečka), winter semester, Bachelor an Master students.
2015 - 2022	**Optimization** (Optimalizace, BOB33OPT), FEE, CTU, Prague, CZ. Seminars, summer semester, Bachelor students.
2012 - present	**Neuroinformatics** (Neuroinformatika, BAM33NIN), FEE, CTU, Prague, CZ. 1 lecture + 1 seminar in summer semester, Master students.

Selected Supervised PhD, Master and Bachelor Students

PhD students: finished, co-supervisor

2018 - 2025	**Mgr. Gabriela Sejnova** (Start: 2018, state exam in 2019, submitted 2024) *Thesis Topic*: *Multimodal Variational Autoencoder for Instruction-Based Action Generation.* Main supervisor: Mgr.Michal Vavrečka, PhD

PhD students: ongoing, co-supervisor

2022 - present	**Ing. Petr Vanc** (Start: 2022, state exam in 2024) *Thesis Topic*: *Context-based Human-Robot Interaction via Multi-type Hand Gestures*. Main supervisor: Prof. Ing. Václav Hlaváč, CSc.
2025 - (to be started)	**Ing. Miroslav David** (To be started: 09/2025) *Thesis Topic*: *Multimodal Human-Robot Command Understanding* Main supervisor: Prof. Dr. Ing. Robert Babuška

MSc students

2025	**Michal Mikeska**, *Context-Aware Model for Integrating Data from Multiple Modalities*. (Supervisor)
2021	**Petr Vanc**, *Probabilistic Gesture Control of a Robotic Arm*. (Supervisor)
2020	**Pavel Stoudek,** *Extracting Material Properties of Objects from Haptic Exploration Using Multiple Robotic Grippers* (Co-Supervisor, Main supervisor: M.Hoffmann, PhD).
2019	**Tan Wei Xi,** Creating Motor Primitives for Controlling KUKA Robotic Arm (Co-supervisor, Main supervisor: Mgr. R.Skoviera, Ph.D.).
2019	**František Puciow**, *Automatic Self-Calibration from Self-Observation and Self-Touch on a Dual-Arm Industrial Manipulator* (Dean's Award for outstanding final thesis, Co-Supervisor, Main supervisor: Dr. Mgr. M.Hoffmann).

Bc students

2025 ***Oleh Borys*** *"Learning rules of manipulation tasks from multiple demonstrations"*

2025 ***Mark Horpynych*** *"Vision-Language Models for Robotic Scene Exploration"*

2025 ***Ivan Pasportnikov*** *"Classification of Time Series (Actions and Dynamic Gestures) for Imitation Learning"*

2024 **Marek Majsner,** *Reinforcement Learning with Parameterized Actions for Imitation Learning.*

2022 **Katerina Kubecova,** *Representation of Motor Actions for Imitation Learning in Robotics.*

2022 **Michal Mikeska,** *Time-Series Classification for Action Detection in Imitation Learning.*

2020 **Michal Mareš,** *Exploratory Action Selection to Learn Object Properties from Haptic Exploration Using a Robot Hand (*Dean's Award for outstanding final thesis*, Co-Supervisor, Main supervisor: M.Hoffmann).*

2019 **Jan Jirman,** *Scene Reconstruction from Multiple RGB-D Cameras and Detection of the Best Additional Camera Viewpoint.*

2019 **Jakub Rozlivek,** *Automatic Kinematic Calibration of Dual Arm Manipulator Using Self-Contact and Plane Constraints.*

2019 **Lukas Rustler,** *Artificial Skin Calibration for the Nao Humanoid Robot Using Self-Touch.*

2019 **Marek Jaluvek,** *Playing Chess with KUKA Robot Using Linguistic Instructions.*

2015 **Josef Dvorak,** *Differences in Behavioral Data Between Gifted and Average Adolescents.*

2015 **Petr Bukovsky,** *Differences in EEG Signals Between Gifted and Average Adolescents.*

Leadership Roles

Throughout my career, I have led multiple research collectives within various projects. I also currently lead a Robotic perception group.

1. **Head of Robotic Perception Group** (since September 2024):
    - Leading the Robotic Perception Group within the Robotics and Machine Perception (RMP) Department at CIIRC CTU in Prague.
    - **Group Composition**: 12 researchers, 1 technical programmer, 4 PhD students, 1 project manager, and 1 administrative support staff.
    - Website
2. **Principal Investigator Roles**:
    - **TACR Zeta ImitRob** (2017–2019, 1 mentor and 2 PhD students) (see Grants section above)
    - **GACR Project Mirracle** (2021–2024, 2 senior researchers, 2 PhD students) (see Grants section above)

3. **Other leading roles within projects** :
   - **JAK Project ROBOPROX (current project)** (2023–2028):
     - Board Member
     - Head of the Women's Forum
     - Deputy of the Research Group on Human-Robot Interaction
4. **Imitation Learning Centre** (Co-founder, since 2018):
   - Established and have been leading a team of approximately 5 researchers and 2 PhD students focused on developing methods for teaching robots by demonstration.

Invited Talks

06/2024	Keyone lecture: "Human-Guided Task Specification for Flexible Robotics". 23th Conference on Cognition and Artificial Life, Piestany, Slovakia.
12/2023	"Cognitive robotics: teaching robots via language and gestures". Fyzikální ústav MFF UK, Prague.
6/2023	"Specification, planning, and reactive execution of high-level robotic". TU Delft (Dr. Jens Kober), Netherlands.
10/2022	"Verbal and nonverbal communication with robots". Emergent system laboratory (prof. Taniguchi) Ritsumeikan university, Japan.
10/2022	"Verbal and nonverbal communication with robots to teach them new skills", prof. Mizuuchi laboratory, TUAT, Tokyo, Japan.
9/2022	"Verbal and nonverbal communication with robots to teach them new skills", 1st Cz-Fr Workshop, Prague, CR. youtube
8/2022	"Controlling robots via language and gestures", CCTA tutorial session, Italy.
3/2022	"Controlling robots via language and gestures", MLT group, DFKI Saarbrucken, Germany.
2017	"Mapping language to vision in real robotic scenario", MLR group, Stuttgart University, Germany.

Service and Governance

Organizing Conferences

Publication chair:

- **ICDL** 2025, Prague (link)
- **3DV** 2022, Prague (link)

Session chair

- **IROS** 2022, Japan

Member of Organizing Committee of the following conferences:

- **KUZ 2016:** Kognice a Umělý život, Telč, Czech Republic, 2016
- **IWCIM** 2015
- **ITBAM** 2015
- **BioDat 2014**: Conference on Advanced Methods of Biological Data and Signal Processing, Prague, 2014
- **BioDat 2012**: Conference on Advanced Methods of Biological Data and Signal Processing, Prague, 2012
- **YBERC 2012**: 5th International Conference on Biomedical Engineering YBERC 2012, Prague, Czech Republic, 2011, Prague, Czech Republic

Reviewer

- **Journals:** TRO, IJRR, RCIM, RAL, RAS, TCDS, TASE, Neurocomputing.
- **Conferences:** ICRA, IROS, Nips, ICDL, CASE, Humanoids, RSS, etc.

Internal (FEE CTU)

Member of the committee for Bc and MSc state exams (since 2018)
Member of the committee for PhD technical minimum defense (2024)

Internal (CIIRC CTU)

Head of women forum within Roboprox project, website (since 2023)
Board member of Roboprox project (since 2023)

Popularization and media

09/2025	Forbes Cesko: featured as one of the TOP Czech Women in Science, interview
22/11/2024	Czech TV - program Wifina, CT Decko, link (27/11/2024 from 2:30), (in Czech only)
17/03/2024	Czech TV, Věda: link, introducing Roboprox project research group focusing on HRI (17/03/2023 from 2:45)

11/05/2023	HN article, "Podej vrtačku, ukliď nářadí. Čeští vědci učí robota pomáhat člověku při výrobě.", pdf (in Czech only)
29/11/2021	Klub Sisyfos Pátečníci, “Kognitivní robotika: kterak učíme roboty chápat význam slov”
2/2019	“Technicall, “*Roboti se učí nápodobou*“, pdf, 2/2019 (in Czech only)
08/2019	O robotice, “*Učíme robota česky*“, pdf, 14.8.2019 (in Czech only)
05/2019	HN article , “*Češi učí roboty napodobovat lidský pohyb a rozumět slovním pokynům, uplatní se v průmyslu či jako asistenti*“, pdf, 30.5.2019 (in Czech only)
07/2019	TyInternety, *“Čeští technici z ČVUT vyvinuli robota, který se učí sledováním a poslouchánim člověka”* , pdf, 26.7.2019 (in Czech)
08/2020	Medium, “Are babies listening to us already in the womb?”, link, 18.8.2020 (English)

Other activities

Founder and head of seminar for high school students within FEE CTU (MoRoUS, 2015-2021) (https://morous.fel.cvut.cz/). The seminar got financial support by CTU grant 2015, 2016, and 2017.

Tutorial classes in Math, Physics and English for children from elementary and high schools; preliminary courses for university entrance exams.

4-weeks online course “Research and publish with ease” for Postdocs and PhD/MSc students, 80 students from all around the world, link to summary about the course.

Blog about cognitive development and research: http://karlastepanova.cz/blog/

Publications

Peer reviewed journal articles

[J10] VANC, P., FRANZESE G., BEHRENS J.K., SANTINA DELLA C., **STEPANOVA**, K, KOBER J., BABUSKA, R., "ILeSiA: Interactive Learning of Robot Situational Awareness From Camera Input," in *IEEE Robotics and Automation Letters*, vol. 10, no. 10, pp. 10490-10497, Oct. 2025, doi: 10.1109/LRA.2025.3601037.

[J9] PLISKA, M., PATNI S., MARES, M., STOUDEK, P., STRAKA Z., **STEPANOVA**, K., HOFFMANN M., Single-grasp Deformable Object Discrimination: the Effect of Gripper Morphology, Sensing Modalities, and Action Parameters. *IEEE Transactions on Robotics*, 2024, doi: 10.1109/TRO.2024.3463402.

[J8] SEDLÁŘ, J.*, **STEPANOVA**, K.*, et al. Imitrob: Imitation Learning Dataset for Training and Evaluating 6D Object Pose Estimators. *IEEE Robotics and Automation Letters*. 2023, 8(5), 2788-2795. ISSN 2377-3766. DOI 10.1109/LRA.2023.3259735.
* - both authors contributed equally

[J7] **ŠTĚPÁNOVÁ**, K. J.ROZLIVEK, T.PUCIOW, P.KRSEK, T.PAJDLA, M.HOFFMANN. Automatic self-contained calibration of an industrial dual-arm robot with cameras using self-contact, planar constraints, and self-observation. *Robotics and Computer-Integrated Manufacturing*. 2022, **73** ISSN 0736-5845. DOI 10.1016/j.rcim.2021.102250.

[J6] ŠKOVIERA, R., J. BEHRENS and K. **ŠTĚPÁNOVÁ**. SurfMan: Generating Smooth End-Effector Trajectories on 3D Object Surfaces for Human-Demonstrated Pattern Sequence. *IEEE Robotics and Automation Letters*. 2022, **7**(4), 9183-9190. ISSN 2377-3766. DOI 10.1109/LRA.2022.3189178.

[J5] BEHRENS, J.K.*, **STEPANOVA** K.*, et al. Specifying Dual-Arm Robot Planning Problems Through Natural Language and Demonstration. *IEEE Robotics and Automation Letters*. 2019, **4**(3), 2622-2629. ISSN 2377-3766. DOI 10.1109/LRA.2019.2898714.
* - both authors contributed equally

[J4] **ŠTĚPÁNOVÁ**, K., T. PAJDLA and M. HOFFMANN. Robot Self-Calibration Using Multiple Kinematic Chains-A Simulation Study on the iCub Humanoid Robot. *IEEE Robotics and Automation Letters*. 2019, **4**(2), 1900-1907. ISSN 2377-3766. DOI 10.1109/LRA.2019.2898320.

[J3] **ŠTĚPÁNOVÁ**, K., F.B.KLEIN, A.CANGELOSI, M.VAVREČKA. Mapping language to vision in a real-world robotic scenario. *IEEE Transactions on Cognitive and Developmental Systems*. 2018, **10**(3), 784-794. ISSN 2379-8920. DOI 10.1109/TCDS.2018.2819359.

[J2] ŠTĚPÁNOVÁ, K. a M. VAVREČKA. Estimating number of components in Gaussian mixture model using combination of greedy and merging algorithm. *Pattern Analysis and Applications*. 2018, 21(1), 181-192. ISSN 1433-7541. DOI 10.1007/s10044-016-0576-5.

[J1] HOFFMANN, M., K. **ŠTĚPÁNOVÁ** a M. REINŠTEIN. The Effect of Motor Action and Different Sensory Modalities on Terrain Classification in a Quadruped Robot Running with Multiple Gaits. *Robotics and Autonomous Systems*. 2014, **62(14)**(62(14)), 1790-1798. ISSN 0921-8890. DOI 10.1016/j.robot.2014.07.006.

Peer-reviewed conference contributions

[C20] MIKESKA, M. and K.**STEPANOVA**. Probabilistic Fusion of Deictic Gestures and Language Command: A Benchmark Dataset and Baseline Methods. In: *IEEE International Conference on Development and Learning (ICDL), 2025.*

[C19] VAVRECKA, M., R.SKOVIERA, G.SEJNOVA, and K.**STEPANOVA**: PRAG: Procedural Action Sequence Symbolic Generator as a Mechanism for Autonomous Learning. In: *IEEE International Conference on Development and Learning (ICDL), 2025.*

[C18] NAZARCZUK, M., J. BEHRENS, K. **STEPANOVA**, M. HOFFMANN, and K. MIKOLAJCZYK. CLIER: Closed Loop Interactive Embodied Reasoning for Robot Manipulation. In: 2025 IEEE International Conference on Robotics and Automation (ICRA). 2025, doi: 10.1109/ICRA55743.2025.11127480.

[C17] ŠEJNOVÁ, G., M. VAVREČKA and K. **ŠTĚPÁNOVÁ**. Bridging Language, Vision and Action: Multimodal VAEs in Robotic Manipulation Tasks. In: *2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)*.DOI 10.1109/IROS58592.2024.10802160

[C16] ŠEJNOVÁ, G., M. VAVREČKA and K. **ŠTĚPÁNOVÁ**. Adaptive Compression of the Latent Space in Variational Autoencoders. In: Proc. of *33rd International Conference on Artificial Neural Networks and Machine Learning (ICANN 2024).* 2024. s. 89-101. ISSN 0302-9743. ISBN 978-3-031-72331-5. DOI 10.1007/978-3-031-72332-2_7.

[C15] VANC, P., J. BEHRENS, K. **STEPANOVA**, and V.HLAVAC. Communicating human intent to a robotic companion by multi-type gesture sentences. In: *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023)*. 2023. s. 9839-9845. ISSN 2153-0866. ISBN 978-1-6654-9190-7. DOI 10.1109/IROS55552.2023.10341944.

[C14] VANC, P., J. BEHRENS and K. **ŠTĚPÁNOVÁ**. Context-aware robot control using gesture episodes. In: *2023 IEEE International Conference on Robotics and Automation*. Londýn, 2023-05-29/2023-06-02. Piscataway: IEEE, 2023. s. 9530-9536. ISSN 2577-087X. ISBN 979-8-3503-2365-8. DOI 10.1109/ICRA48891.2023.10161308.

[C13] VANC, P., K. **ŠTĚPÁNOVÁ** and D. BEßLER. Ontological Context for Gesture Interpretation. In: *Proceedings of the Workshop on Ontologies for Autonomous Robotics co-located with The 32nd IEEE International Conference on Robot and Human Interactive Communication (IEEE RO-MAN 2023)*. 2023. sv. 3595. ISSN 1613-0073, pdf.

[C12] ŠEJNOVÁ, G. and K. **ŠTĚPÁNOVÁ**. Feedback-Driven Incremental Imitation Learning Using Sequential VAE. In: *2022 IEEE International Conference on Development and Learning (ICDL)*, 2022. s. 238-243. ISBN 978-1-6654-1311-4. DOI 10.1109/ICDL53763.2022.9962185.

[C11] VANC, P., K. **ŠTĚPÁNOVÁ** and J. BEHRENS. Controlling Robotic Manipulations via Bimanual Gesture Sequences. In: Proc. Of *2022 International Conference on Robotics and Automation (ICRA)*. Philadelphia, 2022-05-23/2022-05-27. Piscataway: IEEE, 2022. ISSN 1050-4729. ISBN 978-1-7281-9681-7, pdf.

[C10] BEHRENS, J., NAZARCZUK, M., **STEPANOVA**, K., HOFFMANN, M., MIKOLAJCZYK, K..Embodied Reasoning for Discovering Object Properties via Manipulation. In: Proc. Of *IEEE International Conference on Robotics and Automation (ICRA)*, 2021. s. 10139-10145. ISSN 2577-087X. ISBN 978-1-7281-9077-8. DOI 10.1109/ICRA48506.2021.9561212 .

[C9] BEHRENS, J., K. **ŠTĚPÁNOVÁ** and R. BABUŠKA. Simultaneous task allocation and motion scheduling for complex tasks executed by multiple robots. In: Proc. Of *IEEE International Conference on Robotics and Automation (ICRA)*, Paris, 2020-05-31/2020-08-31. IEEE Xplore, 2020. s. 11443-11449. ISSN 2577-087X. ISBN 978-1-7281-7395-5. DOI 10.1109/ICRA40945.2020.9197103.

[C8] ROZLIVEK, J., RUSTLER, L., **STEPANOVA**, K., HOFFMANN, M.. Multisensorial robot calibration framework and toolbox. In: Proc. of *2020 IEEE-RAS 20th International Conference on Humanoid Robots (Humanoids)*. s. 459-466. ISSN 2164-0580. ISBN 978-1-7281-9372-4. DOI 10.1109/HUMANOIDS47582.2021.9555803.

[C7] RUSTLER, L., POTOCNA, B., POLIC, M., **STEPANOVA**, K., HOFFMANN, M.. Spatial calibration of whole-body artificial skin on a humanoid robot: comparing self-contact, 3D reconstruction, and CAD-based calibration. In: Proc. of *2020 IEEE-RAS 20th International Conference on Humanoid Robots (Humanoids)*. s. 445-452. ISSN 2164-0580. ISBN 978-1-7281-9372-4. DOI 10.1109/HUMANOIDS47582.2021.9555806.

[C6] ŠKOVIERA, R., **STEPANOVA**, K., TESAR, M., SEJNOVA, G., SEDLAR, J., BABUSKA, R., SIVIC, J. Teaching robots to imitate a human with no on-teacher sensors. What are the key challenges?. In: *Towards Intelligent Social Robots: From Naive Robots To Robot Sapiens (Workshops to IEEE/RSJ IROS 2018),* 2018, pdf.

[C5] BUKOVSKÝ, P., **STEPANOVA** K., VAVRECKA M., LHOTSKA L.. Differences in EEG between gifted and average gifted adolescents: Mental rotation task. In: *INTERNATIONAL WORKSHOP ON COMPUTATIONAL INTELLIGENCE FOR MULTIMEDIA UNDERSTANDING*. Praha, 2015-10-29/2015-10-30. Praha: České vysoké učení technické v Praze, 2015. ISBN 978-1-4673-8457-5. DOI 10.1109/IWCIM.2015.7347071.

[C4] KLEIN, F.B.K., K. **ŠTĚPÁNOVÁ** and A. C. CANGELOSI. Implementation of a Modular Growing When Required Neural Gas Architecture for Recognition of Falls. In: *Proc. Of 23rd International Conference, ICONIP 2016.* Cham: Springer International Publishing, 2016. s. 526-534. ISSN 0302-9743. ISBN 978-3-319-46686-6. DOI 10.1007/978-3-319-46687-3_58.

[C3] **ŠTĚPÁNOVÁ**, K., BAKSTEIN E., VAVRECKA M., NOVAK D. Methods for Students´Motivation During the Biomedical Engineering Study. In: *Zborník konferencie Trendy v biomedicínskom inžinierstve 2013*. Trendy v biomedicínskom inžinierstve 2013, Podbanské, 2013-07-03/2013-07-05. Košice: Technical University of Kosice, 2013. s. 35-38. ISBN 978-80-8086-208-4.

[C2] **ŠTĚPÁNOVÁ**, K., HOFFMANN M., STRAKA, Z., KLEIN F.B., CANGELOSI A., VAVRECKA M. Where is my forearm? Clustering of body parts from simultaneous tactile and linguistic input using sequential mapping. In: *Kognice a umělý život XVII [Cognition and Artificial Life XVII]*. Kognice a Umělý život XVII, Trenčianské Teplice, 2017-05-31/2017-06-02. Bratislava: Comenius University Bratislava, 2017. s. 155-162. ISBN 978-80-223-4346-6.

[C1] **ŠTĚPÁNOVÁ**, K., M. MACAŠ a L. LHOTSKÁ. Correlation-based Neural Gas for Visualizing Correlations between EEG Features. In: *Advances in Intelligent Systems and Computing*. 7th International Conference on Soft Computing Models in Industrial and Environmental Applications, Ostrava, 2012-09-05/2012-09-07. Heidelberg: Springer, 2013. s. 439-446. Advances in Intelligent Systems and Computing. ISSN 2194-5357. ISBN 978-3-642-33017-9. DOI 10.1007/978-3-642-33018-6_45.