Author's publications

References to the author's work are listed first, followed by other references cited within this work. The authored references contain his contribution and the number of citations based on Web of Science (WoS), Scopus, and Google Scholar (GS). The author has reached h-index 7 in WoS with the first- and second-order self-citations being excluded. The citation counts were gathered on January 1st, 2021.

Thesis-related publications

Impacted WoS SCI-Expanded Q1, Q2 and Q3 journals

- P. Petracek, V. Walter, **T. Baca**, and M. Saska, "Bio-Inspired Compact Swarms of Micro Aerial Vehicles without Communication and External Localization," *Bioinspiration & Biomimetics*, 2020, **25% contribution, IF 3.062 (Q2 in Robotics), citations: 0 in WoS, 0 in Scopus, 0 in GS**.
- M. Petrlik, **T. Baca**, D. Hert, M. Vrba, T. Krajnik, and M. Saska, "A Robust UAV System for Operations in a Constrained Environment," *IEEE Robotics and Automation Letters*, vol. 5, 2 Apr. 2020, ISSN: 2169-2176, **30% contribution, IF 3.608 (Q1 in Robotics), citations: 1 in WoS, 1 in Scopus, 9 in GS**.
- D. A. Saikin, **T. Baca**, M. Gurtner, and M. Saska, "Wildfire Fighting by Unmanned Aerial System Exploiting Its Time-Varying Mass," *IEEE Robotics and Automation Letters*, vol. 5, no. 2, pp. 2674–2681, 2020, **25% contribution, IF 3.608 (Q1 in Robotics), citations: 1 in WoS, 1 in Scopus, 4 in GS**.
- M. Saska, D. Hert, **T. Baca**, V. Kratky, and T. Nascimento, "Formation Control of Unmanned Micro Aerial Vehicles for Straitened Environments," *Autonomous Robots*, pp. 1573–7527, 2020, **20% contribution, IF 3.634 (Q1 in Robotics), citations: 0 in WoS, 0 in Scopus, 0 in GS**.
- P. Stibinger, **T. Baca**, and M. Saska, "Localization of Ionizing Radiation Sources by Cooperating Micro Aerial Vehicles With Pixel Detectors in Real-Time," *IEEE Robotics and Automation Letters*, vol. 5, pp. 3634–3641, 2 Apr. 2020, ISSN: 2377-3766, **Contributions: PS: 75%, TB: 12.5%, MS: 12.5%, IF 3.608 (Q1 in Robotics), citations: 0 in WoS, 0 in Scopus, 0 in GS**.
- W. Giernacki, D. Horla, **T. Baca**, and M. Saska, "Real-time model-free minimum-seeking autotuning method for unmanned aerial vehicle controllers based on fibonacci-search algorithm," *Sensors*, vol. 19, no. 2, p. 312, 2019, **25% contribution, IF 3.031 (Q1 in Robotics), citations: 5 in WoS, 6 in Scopus, 24 in GS**.
- V. Spurny, **T. Baca**, M. Saska, R. Penicka, T. Krajnik, J. Thomas, D. Thakur, G. Loianno, and V. Kumar, "Cooperative Autonomous Search, Grasping and Delivering in a Treasure Hunt Scenario by a Team of UAVs," *Journal of Field Robotics*, vol. 36, no. 1, 125–148, 2019, **Contributions: VS: 50%, TB: 22%, MS: 4%, RP: 4%, TK: 4%, JT: 4%, DT: 4%, GL: 4%, VK: 4%, IF 4.345 (Q1 in Robotics), citations: 19 in WoS, 22 in Scopus, 62 in GS**.
- **T. Baca**, P. Stepan, B. Spurny, D. Hert, R. Penicka, M. Saska, J. Thomas, G. Loianno, and V. Kumar, "Autonomous Landing on a Moving Vehicle with an Unmanned Aerial Vehicle," *Journal of Field Robotics*, vol. 36, pp. 874–891, 5 2019, **Contributions: TB: 50%, PS: 20 %, VS: 5%, DH: 5%, RP: 5%, MS: 5%, JT: 4%, GL: 4%, VK: 4%, IF 4.345 (Q1 in Robotics), citations: 11 in WoS, 11 in Scopus, 46 in GS**.

- G. Loianno, V. Spurny, J. Thomas, **T. Baca**, D. Thakur, D. Hert, R. Penicka, T. Krajnik, A. Zhou, A. Cho, M. Saska, and V. Kumar, "Localization, Grasping, and Transportation of Magnetic Objects by a team of MAVs in Challenging Desert like Environments," *IEEE Robotics and Automation Letters*, vol. 3, no. 3, pp. 1576–1583, 2018, **10% contribution (the first 7 authors contributed equally), IF 3.608 (Q1 in Robotics), citations: 26 in WoS, 30 in Scopus, 66 in GS**.
- **T. Baca**, M. Jilek, I. Vertat, M. Urban, O. Nentvich, R. Filgas, C. Granja, A. Inneman, and V. Daniel, "Timepix in LEO Orbit onboard the VZLUSAT-1 Nanosatellite: 1-year of Space Radiation Dosimetry Measurements," *Journal of Instrumentation*, vol. 13, no. 11, p. C11010, 2018, **Contributions: TB: 60%, MJ: 5%, IV: 5%, MU: 5%, ON: 5%, RF: 5%, CG: 5%, AN: 5%, VD: 5%, IF 1.366 (Q3 in Instruments & Instrumentation), citations: 8 in WoS, 10 in Scopus, 14 in GS**.
- **T. Baca**, D. Turecek, R. McEntaffer, and R. Filgas, "Rospix: modular software tool for automated data acquisitions of Timepix detectors on Robot Operating System," *Journal of Instrumentation*, vol. 13, no. 11, p. C11008, 2018, **70% contribution, IF 1.366 (Q3 in Instruments & Instrumentation), citations: 3 in WoS, 3 in Scopus, 5 in GS**.
- M. Saska, **T. Baca**, J. Thomas, J. Chudoba, L. Preucil, T. Krajnik, J. Faigl, G. Loianno, and V. Kumar, "System for deployment of groups of unmanned micro aerial vehicles in GPS-denied environments using onboard visual relative localization," *Autonomous Robots*, vol. 41, no. 4, pp. 919–944, 2017, **22% contribution, IF 3.634 (Q1 in Robotics), citations: 50 in WoS, 66 in Scopus, 142 in GS**.
- J. Chudoba, M. Kulich, M. Saska, **T. Baca**, and L. Preucil, "Exploration and Mapping Technique Suited for Visual-features Based Localization of MAVs," English, *Journal of Intelligent & Robotic Systems*, pp. 1–19, 2016, **15% contribution, IF 2.02 (Q3 in Robotics), citations: 3 in WoS, 5 in Scopus, 35 in GS**.
- V. Daniel, A. Inneman, I. Vertat, **T. Baca**, O. Nentvich, M. Urban, V. Stehlikova, L. Sieger, P. Skala, R. Filgas, V. Zadrazil, R. Linhart, J. Masopust, T. Jamroz, L. Pina, V. Marsikova, L. Mikulickova, E. Belas, S. Pospisil, Z. Vykydal, Y. Mora, and R. Pavlica, "In-Orbit Commissioning of Czech Nanosatellite VZLUSAT-1 for the QB50 Mission with a Demonstrator of a Miniaturised Lobster-Eye X-Ray Telescope and Radiation Shielding Composite Materials," *Space Science Reviews*, vol. 215, no. 5, p. 40, Jul. 2019, ISSN: 1572-9672, **5% contribution, IF 8.142 (Q1 in Astronomy & Astrophysics), citations: 5 in WoS, 5 in Scopus, 5 in GS**.
- M. Urban, O. Nentvich, V. Stehlikova, **T. Baca**, V. Daniel, and R. Hudec, "VZLUSAT-1: Nanosatellite with miniature lobster eye X-ray telescope and qualification of the radiation shielding composite for space application," *Acta Astronautica*, vol. 140, pp. 96–104, 2017, **20% contribution, IF 2.482 (Q1 in Engineering, Aerospace), citations: 26 in WoS, 29 in Scopus, 35 in GS**.
- **T. Baca**, M. Platkevic, J. Jakubek, A. Inneman, V. Stehlikova, M. Urban, O. Nentvich, M. Blazek, R. McEntaffer, and V. Daniel, "Miniaturized X-ray telescope for VZLUSAT-1 nanosatellite with Timepix detector," *Journal of Instrumentation*, vol. 11, no. 10, p. C10007, 2016, **52% contribution, IF 1.454 (Q3 in Instruments & Instrumentation), citations: 39 in WoS, 40 in Scopus, 45 in GS**.

Conference proceedings CORE A*, CORE A

- **T. Baca**, M. Jilek, P. Manek, P. Stibinger, V. Linhart, J. Jakubek, and M. Saska, "Timepix Radiation Detector for Autonomous Radiation Localization and Mapping by Micro Unmanned Vehicles," in *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems*, IEEE, 2019, pp. 1–8, **rank A (CORE), Contributions: TB: 50%, MJ: 15%, PM: 10%, PS: 10%, VL: 5%, JJ: 5%, MS: 5%, citations: 0 in WoS, 1 in Scopus, 1 in GS**.

- **T. Baca**, D. Hert, G. Loianno, M. Saska, and V. Kumar, "Model Predictive Trajectory Tracking and Collision Avoidance for Reliable Outdoor Deployment of Unmanned Aerial Vehicles," in *2018 IEEE/RSJ International Conference on Intelligent Robots and Systems*, IEEE, 2018, pp. 1–8, **rank A (CORE), Contributions: TB: 60%, DH: 16%, GL: 8%, MS: 8%, VK: 8%, citations: 19 in WoS, 23 in Scopus, 65 in GS**.

Other proceedings in WoS

- T. Roucek, M. Pecka, P. Cizek, T. Petricek, J. Bayer, V. Salansky, D. Hert, M. Petrlik, **T. Baca**, V. Spurny, F. Pomerleau, V. Kubelka, J. Faigl, K. Zimmermann, M. Saska, T. Svoboda, and T. Krajnik, "DARPA Subterranean Challenge: Multi-robotic exploration of underground environments," in *IEEE Modelling and Simulation for Autonomous Systems (MESAS)*, vol. 11995, 2019, pp. 274–290, **5% contribution, citations: 2 in WoS, 0 in Scopus, 12 in GS**.
- J. Faigl, P. Vana, M. Saska, **T. Baca**, and V. Spurny, "On solution of the Dubins touring problem," in *2017 IEEE European Conference on Mobile Robots (ECMR)*, 2017, pp. 1–6, **10% contribution, citations: 3 in WoS, 7 in Scopus, 19 in GS**.
- M. Saska, V. Kratky, V. Spurny, and **T. Baca**, "Documentation of dark areas of large historical buildings by a formation of unmanned aerial vehicles using model predictive control," in *IEEE International Conference on Emerging Technologies and Factory Automation (ETFA)*, IEEE, 2017, **25% contribution, citations: 11 in WoS, 11 in Scopus, 46 in GS**.
- **T. Baca**, P. Stepan, and M. Saska, "Autonomous Landing On A Moving Car With Unmanned Aerial Vehicle," in *IEEE European Conference on Mobile Robotics (ECMR)*, IEEE, 2017, **33% contribution, citations: 11 in WoS, 16 in Scopus, 52 in GS**.
- M. Saska, **T. Baca**, and D. Hert, "Formations of unmanned micro aerial vehicles led by migrating virtual leader," in *IEEE International Conference on Control, Automation, Robotics and Vision (ICARCV)*, IEEE, 2016, **rank A (CORE), 30% contribution, citations: 3 in WoS, 3 in Scopus, 29 in GS**.
- V. Spurny, **T. Baca**, and M. Saska, "Complex manoeuvres of heterogeneous MAV-UGV formations using a model predictive control," in *2016 IEEE International Conference on Methods and Models in Automation and Robotics (MMAR)*, 2016, pp. 998–1003, **10% contribution, citations: 7 in WoS, 8 in Scopus, 51 in GS**.
- **T. Baca**, G. Loianno, and M. Saska, "Embedded Model Predictive Control of Unmanned Micro Aerial Vehicles," in *IEEE International Conference on Methods and Models in Automation and Robotics (MMAR)*, IEEE, 2016, pp. 992–997, **80% contribution, citations: 25 in WoS, 29 in Scopus, 88 in GS**.
- V. Daniel, A. Inneman, L. Pina, V. Zadrazil, **T. Baca**, V. Stehlikova, O. Nentvich, M. Urban, V. Marsikova, R. McEntaffer, J. Tutt, and T. Schulz, "X-ray Lobster Eye All-sky Monitor for Rocket Experiment," in *EUV and X-Ray Optics: Synergy Between Laboratory And Space V*, SPIE, vol. 10235, 2017, **10% contribution, citations: 11 in WoS, 16 in Scopus, 16 in GS**.
- V. Daniel, L. Pina, A. Inneman, V. Zadrazil, **T. Baca**, M. Platkevic, V. Stehlikova, O. Nentvich, and M. Urban, "Terrestrial gamma-ray flashes monitor demonstrator on CubeSat," English, in *SPIE: CubeSats and NanoSats for Remote Sensing*, San Diego, California, United States, 2016, **11% contribution, citations: 17 in WoS, 19 in Scopus, 15 in GS**.

Unrelated publications

Conference proceedings CORE A*, CORE A

- M. Saska, V. Vonasek, **T. Baca**, and L. Preucil, "Ad-hoc Heterogeneous (MAV-UGV) Formations Stabilized Under a Top-View Relative Localization," English, in *2013 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Piscataway: IEEE, 2013, **25% contribution, citations: 0 in WoS, 0 in Scopus, 2 in GS**.

Other proceedings in WoS

- J. Chudoba, M. Saska, **T. Baca**, and L. Preucil, "Localization and stabilization of micro aerial vehicles based on visual features tracking," English, in *2014 IEEE International Conference on Unmanned Aircraft Systems*, vol. 1, IEEE, 2014, pp. 611–616, ISBN: 978-1-4799-2376-2, **16% contribution, citations: 2 in WoS, 7 in Scopus, 33 in GS**.

Author's Projects

Following project proposals were co-written by the thesis author and have been accepted.

TAČR FW01010317

Call: TAČR TREND, 1st call
CZ: Lokalizace zdrojů ionizující radiace pomocí malých bezpilotních helikoptér s detektorem na principu Comptonovy kamery
EN: Localization of ionizing radiation sources using small unmanned helicopters equipped with a Compton camera detector
Accepted: 2020, 8th of 396 submitted for the call
Principal Investigator: Advacam, s.r.o.

TAČR FW03010020

Call: TAČR TREND, 3rd call
CZ: Systém navigace, lokalizace, řízení a plánování pro flotilu autonomních mobilních robotů
EN: Navigation, localization, control and planning for a fleet of autonomous mobile robots
Accepted: 2021, 13th of 458 submitted for the call
Principal Investigator: DataVision, s.r.o.

Citations of Author's Publications

Citations of the author's work were extracted from the Web of Science. First- and second-order self-citations are excluded. The data were gathered on January 1st, 2021.

M. Saska, **T. Baca**, J. Thomas, J. Chudoba, L. Preucil, T. Krajnik, *et al.*, "System for deployment of groups of unmanned micro aerial vehicles in GPS-denied environments using onboard visual relative localization," *Autonomous Robots*, vol. 41, no. 4, pp. 919–944, 2017

- J. Dunn and R. Tron, "Temporal Siamese Networks for Clutter Mitigation Applied To Vision-based Quadcopter Formation Control," *IEEE Robotics and Automation Letters*, vol. 6, no. 1, 32–39, Jan. 2021.
- M. Amir and A. M. Bruckstein, "Fast Uniform Dispersion of A Crash-prone Swarm," in *Robotics: Science and Systems XVI*, 2020.
- C. Chen, Y. Tian, L. Lin, S. Chen, H. Li, Y. Wang, and K. Su, "Obtaining World Coordinate Information of UAV In GNSS Denied Environments," *Sensors*, vol. 20, no. 8, Jan. 2020.
- M. Chen, Z. Xiong, J. Liu, R. Wang, and J. Xiong, "Cooperative Navigation of Unmanned Aerial Vehicle Swarm Based On Cooperative Dilution of Precision," *International Journal of Advanced Robotic Systems*, vol. 17, no. 3, Jan. 2020.
- M. Coppola, K. N. Mcguire, C. De Wagter, and G. C. H. E. De Croon, "A Survey on Swarming With Micro Air Vehicles: Fundamental Challenges And Constraints," *Frontiers In Robotics and Ai*, vol. 7, Jan. 2020.
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- H. Isakhani, N. Aouf, O. Kechagias-stamatis, and J. F. Whidborne, "A Furcated Visual Collision Avoidance System for An Autonomous Microrobot," *IEEE Transactions on Cognitive and Developmental Systems*, vol. 12, no. 1, 1–11, Jan. 2020.
- Y. Li, "Design of Path Tracking Control System for UAV Based on Adaptive Preview Method," *Jordan Journal of Mechanical and Industrial Engineering*, vol. 14, no. 1, Si, 101–108, Jan. 2020.
- P. Moreno, S. Esteva, I. Mas, and J. Giribet I, "Multi-UAV Specification and Control With A Single Pilot-in-the-loop," *Unmanned Systems*, vol. 8, no. 4, Si, 269–277, Jan. 2020.
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- F. She, Y. Zhang, D. Shi, H. Zhou, X. Ren, and T. Xu, "Enhanced Relative Localization Based on Persistent Excitation For Multi-UAVs In GPS-denied Environments," *IEEE Access*, vol. 8, 148136–148148, 2020.
- J. Tao, Y. Jia, and Y. Gao, "Intelligent Remote Monitoring System for Minor Faults of Intelligent Unmanned Vehicle," *Jordan Journal of Mechanical and Industrial Engineering*, vol. 14, no. 1, Si, 61–70, Jan. 2020.
- X. Tian, G. Wei, L. Wang, and J. Zhou, "Wireless -Sensor -Network -Based Target Localization: A Semidefinite Relaxation Approach With Adaptive Threshold Correction," *Neurocomputing*, vol. 405, 229–238, Jan. 2020.
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- M. Amir and A. M. Bruckstein, "Minimizing Travel In the Uniform Dispersal Problem for Robotic Sensors," in *AAMAS '19: Proceedings of the 18th International Conference On Autonomous Agents and Multiagent Systems*, 2019, 113–121.

- M. Beul, M. Nieuwenhuisen, J. Quenzel, R. A. Rosu, J. Horn, D. Pavlichenko, S. Houben, and S. Behnke, "Team Nimbro At MBZIRC 2017: Fast Landing on A Moving Target and Treasure Hunting With A Team of Micro Aerial Vehicles," *Journal of Field Robotics*, vol. 36, no. 1, Si, 204–229, Jan. 2019.
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