

**IULIAN IOAN IORDACHITA Ph.D.**  
Research Professor

Department of Mechanical Engineering  
Whiting School of Engineering, Johns Hopkins University  
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**RESEARCH INTERESTS**

Robotics / Medical Robotics / Surgical Robotics  
Medical Instrumentation / Smart Surgical Tools  
Image-Guided Surgery / Computer Assisted Surgery  
Mechanisms and Mechanical Transmissions for Robots

**EDUCATION**

- 03/2000-08/2000: **Post-Doctoral Fellow** in Medical Robotics, Brady Urological Institute, School of Medicine, Johns Hopkins University, Baltimore, MD, USA.
- 01/1992-11/1996: **Doctor Engineer Diploma** (equivalent to **Ph.D.**) in Mechanical Engineering, University of Craiova, Romania  
Dissertation: *Contributions to the study of biologically inspired mechanisms for dragging locomotion.*
- 09/1988-06/1989: **Diploma of Advanced Studies** (equivalent to **MS**), in Industrial Robots, University of Craiova, Romania,  
Thesis: *Mechanical Hands for Industrial Robots*
- 09/1979–06/1984: **Mechanical Engineer Diploma** (equivalent to **BS & MS**), Specialization - Technology of Mechanical Engineering, University of Craiova, Romania  
Thesis: *Industrial Robot actuated with Pneumatic Motors*
- 09/1974-05/1978: **Diploma of Bacalaureate**, “Nicolae Titulescu” High School, Craiova, Romania

**PROFESSIONAL EXPERIENCE**

- 07/2019 – cont.: **Research Professor**, Department of Mechanical Engineering, Whiting School of Engineering, Johns Hopkins University, Baltimore, MD, USA - research activity
- 07/2014 – 06/2019: **Associate Research Professor**, Department of Mechanical Engineering, Whiting School of Engineering, Johns Hopkins University, Baltimore, MD, USA - research activity
- 11/2009 – 06/2014: **Assistant Research Professor**, Department of Mechanical Engineering, Whiting School of Engineering, Johns Hopkins University, Baltimore, MD, USA - research activity

- 07/2007 – 10/2009: **Assoc. Research Scientist**, Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University, Baltimore, MD, USA - research activity
- 04/2004 – 06/2007: **Research Engineer**, Center for Computer-Integrated Surgical Systems and Technology, Johns Hopkins University, Baltimore, MD, USA - research activity
- 10/2003 – 03/2004: **Associate Professor**, School of Mechanical Engineering, University of Craiova, Romania – teaching and research activity
- 10/2002 – 09/2003: **Visiting Associate Professor**, Graduate School of Frontier Sciences, The University of Tokyo, JAPAN - research activity
- 10/1998 – 09/2002: **Associate Professor**, School of Mechanical Engineering, University of Craiova, Romania – teaching and research activity
- 10/1993 – 09/1998: **Senior Lecturer**, School of Mechanical Engineering, University of Craiova, Romania – teaching and research activity
- 09/1990 – 09/1993: **Assistant Professor**, School of Mechanical Engineering, University of Craiova, Romania – teaching and research activity
- 10/1986 – 08/1990: **Research-Design Engineer**, Research and Technology Institute for Electric Motors, Transformers and Electric Apparatus, Craiova, Romania – design and research activity
- 09/1984 – 09/1986: **Mechanical Engineer**, S.C. “Electroputere” SA, Craiova, Romania, Tools Factory – manufacturing process design activity

## TEACHING EXPERIENCE

- 09.2015 – 12.2018: JHU, WSE, Mechanical Engineering Department:  
- **EN.530.403, Engineering Design Project I** (part time)
- 02.2015 – 05.2019: JHU, WSE, Mechanical Engineering Department:  
- **EN.530.404, Engineering Design Project II** (part time)
- 10.1998 – 03.2004: Associate Professor, School of Mechanical Engineering, University of Craiova, Romania:  
- **Industrial Robots** – Course, Laboratory experiments;  
- **Mechanical Structures for Robots and Manipulators** – Course, Laboratory experiments, Project, Seminar;  
- **Machine Components Design** - Course, Laboratory experiments, Project;  
- **Special Mechanisms and Mechanical Transmissions for Robots** - Course, Laboratory experiments, Project, Seminar;  
- **Machine Design Optimization** - Course, Project, Seminar (2002-2004, new course).
- 10/1993 – 09/1998: Senior Lecturer, School of Mechanical Engineering, University of Craiova, Romania:  
- **Industrial Robots** – Course, Laboratory experiments (new course);  
- **Mechanical Structures for Robots and Manipulators** – Course, Laboratory experiments, Project, Seminar (new course);  
- **Machine Components Design** - Course, Laboratory experiments, Project;  
- **Mechanisms and Machines Theory** - Course, Laboratory experiments, Project, Seminar;

- 09/1990 – 09/1993: Assistant Professor, School of Mechanical Engineering, University of Craiova, Romania:
- **Machine Components Design** – Laboratory experiments, Project, Seminar;
  - **Mechanisms and Machines Theory** – Laboratory experiments, Project, Seminar;

## AWARDS

- 2022: Best Student Paper Award (for student Junxiang Wang), ISMR 2022  
 2022: Best Paper Award - 2<sup>nd</sup> Place (for students Kaiyu Shi, Yishun Zhou), ISMR 2022  
 2020: Best Paper Award - Finalist, IEEE IROS 2020  
 2019: Best Paper Award in Medical Robotics, ICRA 2019  
 2019: Best Symposium Poster Award, ISMR 2019  
 2019: Best Student Paper Award (for student Shahriar Sefati), ISMR 2019  
 2015: Best Paper Award, IEEE MFI 2015  
 2014: Best Medical Application Paper Award, IEEE Sensor 2014  
 2014: Best Student Paper Award (for student Berk Gonenc), IEEE Sensor 2014  
 2014: Best Student Paper Award - Finalist (for student Xingchi He), IEEE ICRA 2014  
 2014: Senior Member, IEEE  
 2012: Best Poster Award, 2nd Place, CARS 2012  
 2010: Best Poster Award, Hamlyn Symposium 2010

## PUBLICATIONS

### Books and Textbooks

- [B1] Popescu, I., **Iordachita, I.**, Dumitru, N., Rinderu, P. *Biological Mechanisms*, SITECH Publishing House, Craiova, Romania, ISBN 973-97524-9-1, 1997, (in Romanian).  
 [B2] **Iordachita, I.** *Special Mechanisms and Mechanical Transmissions for Industrial Robots*, University of Craiova, Publishing House, 1997, (in Romanian).  
 [B3] **Iordachita, I.** *Industrial Robots*, University of Craiova, Publishing House, 1997, (in Romanian).  
 [B4] Catrina, G., Dumitru, N., Ilie, E., **Iordachita, I.**, Margine, A., Rosca, D. *Machine Parts. Practical Applications Guide*, University of Craiova, Publishing House, 1994, (in Romanian).

### Books Chapters

- [B5] Tosi, D., Poeggel, S., **Iordachita, I.**, and Schena, E., "Fiber Optic Sensors for Biomedical Applications." In *Opto-Mechanical Fiber Optic Sensors*, pp. 301-333. 2018, <https://doi.org/10.1016/B978-0-12-803131-5.00011-8>  
 [B6] Vander Poorten, E., Riviere, C.N., Abbott, J.J., Bergeles, C., Nasser, M.A., Kang, J.U., Sznitman, R., Faridpooya, K. and **Iordachita, I.**, Robotic Retinal Surgery. In *Handbook of Robotic and Image-Guided Surgery* (pp. 627-672). Oct.2019. Elsevier.  
 [B7] Deng, Z., Xu, X., Dehghani, H., Sforza, D.M., **Iordachita, I.**, Lim, M., Wong, J.W. and Wang, K.K.H., "Quantitative Bioluminescence Tomography for In Vivo Volumetric-Guided Radiotherapy." In *Biomedical Engineering Technologies. Methods in Molecular Biology*, Vol. 2393, pp. 701-731. 2022, Humana, New York, NY., [https://doi.org/10.1007/978-1-0716-1803-5\\_38](https://doi.org/10.1007/978-1-0716-1803-5_38).

- [B8] Roizenblatt, M., Ebrahimi, A., **Iordachita, I.** and Gehlbach, P.L., “Robotic Systems in Ophthalmologic Surgery.” In *Robotic Surgery Devices in Surgical Specialties*, Cham: Springer International Publishing, pp. 161-174, Oct. 2023, [https://doi.org/10.1007/978-3-031-35102-0\\_12](https://doi.org/10.1007/978-3-031-35102-0_12).
- [B9] Wang, X., Li, Y., Wu, M., Hao, Y., Tian, L., He, Z., Au, K.W.S., Taylor, R.H., **Iordachita, I.**, Chan, J.Y. and Fan, J.K.M., Cheung, K.M.C., and Kwok, K.W., “Intra-operative image-guided interventional robotics—where are we now and where are we going?” In *Machine Learning, Medical AI and Robotics: Translating theory into the clinic* (pp. 7-1 to 7-31). Bristol, UK: IOP Publishing.

## Journal Papers

- [J1] Liu, D., Li, G., Wang, S., Liu, Z., Wang, Y., Connolly, L., Usevitch, D.E., Shen, G., Cleary, K. and **Iordachita, I.**, A magnetic resonance conditional robot for lumbar spinal injection: Development and preliminary validation. *The International Journal of Medical Robotics and Computer Assisted Surgery*, vol. xx, no. xx, pp. x-x, (13 pages), Online Dec. 2023, <https://doi.org/10.1002/rcs.2618>
- [J2] He, Z., Dai, J., Ho, J.D.L., Tong, H.S., Wang, X., Fang, G., Liang, L., Cheung, C.L., Guo, Z., Chang, H.C., **Iordachita, I.**, Taylor, R.H., Poon, W.S., Chan, D.T.M., and Kwok, K.W., “Interactive Multi-Stage Robotic Positioner for Intra-Operative MRI-Guided Stereotactic Neurosurgery.” *Advanced Science*, p.2305495. Vol. xx, no. xx, pp. x-x (15 pages) Nov. 2023 <https://doi.org/10.1002/advs.202305495>
- [J3] Alamdar, A., Usevitch, D.E., Wu, J., Taylor, R.H., Gehlbach, P. and **Iordachita, I.**, “Steady-hand eye robot 3.0: Optimization and benchtop evaluation for subretinal injection.” *IEEE Transactions on Medical Robotics and Bionics*. Vol. xx, no. xx, pp. x-x (12 pages) Nov. 2023, <https://doi.org/10.1109/TMRB.2023.3336975>
- [J4] Lezcano, D.A., Zhetpissov, Y., Cheng, A., Kim, J.S., **Iordachita, I.**, “Optical Fiber-Based Needle Shape Sensing in Real Tissue: Single Core vs. Multicore Approaches.” *Journal of Medical Robotics Research*. Vol. xx, no. xx, pp. x-x (10 pages) Oct. 2023.
- [J5] Xu, X., Deng, Z., Sforza, D., Tong, Z., Tseng, Y.P., Newman, C., Reinhart, M., Tsouchlos, P., Devling, T., Dehghani, H., **Iordachita, I.**, Wong, J.W., and Wang, K.H., “Characterization of a commercial bioluminescence tomography-guided system for pre-clinical radiation research.” *Medical Physics*. 2023 Aug 26., <https://doi.org/10.1002/mp.16669>
- [J6] Clancy, M., Alruwaili, F., Saeedi-Hosseiny, M., McMillan, S., **Iordachita, I.I.** and Abedin-Nasab, M., “Analysis and Optimization of a 6-DoF 3-RRPS Parallel Mechanism for Robot-Assisted Long-Bone Fracture Surgery.” *Journal of Mechanisms and Robotics*, vol. 16, no. 6, p 061006 (11 pages), Jun. 2024, pp.1-34. Online August 10, 2023, <https://doi.org/10.1115/1.4063167>
- [J7] Wang, J., Wu, T., **Iordachita, I.** and Kazanzides, P., “Calibration and Evaluation of a Motion Measurement System for PET Imaging Studies.” *Journal of Medical Robotics Research*. Vol. 08, no. 01 and 02, p. 2340003 (10 pages) Jun. 5, 2023, <https://doi.org/10.1142/S2424905X23400032>
- [J8] Amirkhani, G., Goodridge, A., Esfandiari, M., Phalen, H., Ma, J.H., **Iordachita, I.** and Armand, M., “Design and Fabrication of a Fiber Bragg Grating Shape Sensor for Shape Reconstruction of a Continuum Manipulator.” *IEEE Sensors Journal*. vol. 23, no. 12, pp. 12915-12929, Jun. 2023. DOI: [10.1109/JSEN.2023.3274146](https://doi.org/10.1109/JSEN.2023.3274146)

- [J9] Saeedi-Hosseiny, M.S., Alruwaili, F., Clancy, M.P., Corson, E.A., McMillan, S., Papachristou, C., Bouaynaya, N., **Iordachita, I.I.** and Abedin-Nasab, M.H., "Automatic Alignment of Fractured Femur: Integration of Robot and Optical Tracking System." *IEEE Robotics and Automation Letters*. Vol. 8. No. 5, pp. 2438-2445, May 2023, DOI: [10.1109/LRA.2023.3251198](https://doi.org/10.1109/LRA.2023.3251198)
- [J10] Ghazi, P., Fu, G., Ghazi, T., Kazanzides, P., **Iordachita, I.** "Narrow Beam Breast CT: Proof-of-concept." *Medical Physics*. Vol. 50, no. 6, pp. 3418-3434, Jun. 2023. <https://doi.org/10.1002/mp.16332>
- [J11] Wang, Y., Kwok, K.W., Cleary, K., Taylor, R.H., and **Iordachita, I.I.**, "Flexible Needle Bending Model for Spinal Injection Procedures." In *IEEE Robotics and Automation Letters*, vol. 8, no. 3, pp. 1343-1350, Mar. 2023, DOI: [10.1109/LRA.2023.3239310](https://doi.org/10.1109/LRA.2023.3239310)
- [J12] Zhou, M., Hennerkes, F., Liu, J., Jiang, Z., Wendler, T., Nasser, M.A., **Iordachita, I.** and Navab, N., "Theoretical error analysis of spotlight-based instrument localization for retinal surgery." *Robotica*, pp.1-14. Jan. 2023 <https://doi.org/10.1017/S0263574722001862>
- [J13] Alruwaili, F., Saeedi-Hosseiny, M.S., Clancy, M., McMillan, S., **Iordachita, I.I.** and Abedin-Nasab, M.H., "Experimental Evaluation of a 3-Armed 6-DOF Parallel Robot for Femur Fracture Surgery." *Journal of Medical Robotics Research*, p.2241009. Dec. 2022, <https://doi.org/10.1142/S2424905X22410094>
- [J14] Lezcano, D.A., **Iordachita, I.I.** and Kim, J.S., "Lie-Group Theoretic Approach to Shape-Sensing Using FBG-Sensorized Needles Including Double-Layer Tissue and S-Shape Insertions." *IEEE Sensors Journal*. vol. 22, no. 22, pp. 22232- 22243, Oct. 2022, DOI: [10.1109/JSEN.2022.3212209](https://doi.org/10.1109/JSEN.2022.3212209)
- [J15] Ji, T., Feng, Z., Sun, E., Ng, S.K., Su, L., Zhang, Y., Han, D., Han-Oh, S., **Iordachita, I.**, Lee, J., Kazanzides, P., Bell, M.A.L., Wong, J., Ding, K. "A phantom-based analysis for tracking intra-fraction pancreatic tumor motion by ultrasound imaging during radiation therapy." *Front Oncol*. vol.12, p: 996537. Sep. 2022, DOI: 10.3389/fonc.2022.996537.
- [J16] Patel, N., Urias, M., Ebrahimi, A., Taylor, R.H., Gehlbach, P. and **Iordachita, I.**, "Force-Based Control for Safe Robot-Assisted Retinal Interventions: In Vivo Evaluation in Animal Studies." *IEEE Transactions on Medical Robotics and Bionics*, vol.4, no. 3, pp.578-587, Aug. 2022, DOI: [10.1109/TMRB.2022.3191441](https://doi.org/10.1109/TMRB.2022.3191441),
- [J17] Deng, Z., Xu, X., **Iordachita, I.**, Dehghani, H., Zhang, B., Wong, J.W. and Wang, K.K.H., "Mobile bioluminescence tomography-guided system for pre-clinical radiotherapy research." *Biomedical Optics Express*, vol.13, no. 9, pp.4970-4989. Sep. 2022, DOI: 10.1364/BOE.460737
- [J18] Ebrahimi, A., Sefati, S., Gehlbach, P., Taylor, R.H. and **Iordachita, I.I.**, "Simultaneous Online Registration-Independent Stiffness Identification and Tip Localization of Surgical Instruments in Robot-Assisted Eye Surgery." *IEEE Transactions on Robotics*. Vol. xx, no. x, On-line Sep 9, 2022, DOI: [10.1109/TRO.2022.3201393](https://doi.org/10.1109/TRO.2022.3201393)
- [J19] **Iordachita, I.I.**, de Smet, M.D., Naus, G., Mitsuishi, M., and Riviere, C.N., "Robotic Assistance for Intraocular Microsurgery: Challenges and Perspectives," in *Proceedings of the IEEE*, vol. 110, no. 7, pp. 893-908, Jul. 2022, DOI: 10.1109/JPROC.2022.3169466.
- [J20] Sommersperger, M., Martin-Gomez, A., Mach, K., Gehlbach, P.L., Nasser, M.A., **Iordachita, I.** and Navab, N., "Surgical scene generation and adversarial networks for physics-based iOCT synthesis." *Biomedical Optics Express*, vol. 13, no. 4, pp. 2414-2430, Apr. 2022, <https://doi.org/10.1364/BOE.454286>
- [J21] Su, H., Kwok, K.W., Cleary, K., **Iordachita, I.**, Cavusoglu, M.C., Desai, J.P., and Fischer, G.S., "State of the Art and Future Opportunities in MRI-Guided Robot-Assisted Surgery and Interventions." *Proceedings of the IEEE*. vol. 110, no. 7, pp. 968-992, Jul. 2022, DOI: 10.1109/JPROC.2022.3169146.

- [J22] Saeedi-Hosseiny, M.S., Alruwaili, F., McMillan, S., **Iordachita, I.** and Abedin-Nasab, M.H., "A Surgical Robotic System for Long-Bone Fracture Alignment: Prototyping and Cadaver Study." *IEEE Transactions on Medical Robotics and Bionics*. vol. 4, no. 1, pp.172-182, Feb. 2022, DOI: [10.1109/TMRB.2021.3129277](https://doi.org/10.1109/TMRB.2021.3129277)
- [J23] Alamdar, A., Patel, N., Urias, M.G., Ebrahimi, A., Gehlbach, P.L. and **Iordachita, I.**, "Force and Velocity Based Puncture Detection in Robot Assisted Retinal Vein Cannulation: in-vivo Study". *IEEE Transactions on Biomedical Engineering*. vol. 69, no. 3, pp.1123-1132, Mar. 2022, DOI: [10.1109/TBME.2021.3114638](https://doi.org/10.1109/TBME.2021.3114638)
- [J24] Xu, X., Deng, Z., Dehghani, H., **Iordachita, I.**, Lim, M., Wong, J.W. and Wang, K.K.H., "Quantitative Bioluminescence Tomography-guided Conformal Irradiation for Pre-clinical Radiation Research". *International Journal of Radiation Oncology\* Biology\* Physics.*, vol. 111, no. 5, pp 1310-1321, Dec. 2021, <https://doi.org/10.1016/j.ijrobp.2021.08.010>
- [J25] Zhou, M., Wu, J., Ebrahimi, A., Patel, N., Liu, Y., Navab, N., Gehlbach, P., Knoll, A., Nasser, M.A. and **Iordachita, I.**, "Spotlight-based 3D Instrument Guidance for Autonomous Task in Robot-assisted Retinal Surgery". In *IEEE Robotics and Automation Letters*, vol. 6, no. 4, pp. 7750-7757, Jul. 2021 [doi:10.1109/LRA.2021.3100937](https://doi.org/10.1109/LRA.2021.3100937)
- [J26] Sefati, S., Hegeman, R., **Iordachita, I.**, Taylor, R.H. and Armand, M., "A Dexterous Robotic System for Autonomous Debridement of Osteolytic Bone Lesions in Confined Spaces: Human Cadaver Studies." *IEEE Transactions on Robotics*. vol. 38, no. 2, pp. 1213- 1229, Apr. 2022, [doi: 10.1109/TRO.2021.3091283](https://doi.org/10.1109/TRO.2021.3091283).
- [J27] Patel, N., Yan, J., Li, G., Monfaredi, R., Priba, L., Donald-Simpson, H., Joy, J., Dennison, A., Melzer, A., Sharma, K., **Iordachita, I.**, and Cleary, K., "Body-mounted Robotic System for MRI-guided Shoulder Arthrography: Cadaver and Clinical Workflow Studies MRI-guided Robot for Shoulder Arthrography." *Frontiers in Robotics and AI*, vol.8, 10 pages, art. # 667121, May 2021. <https://doi.org/10.3389/frobt.2021.667121>
- [J28] Jinno, M. and **Iordachita, I.**, "Improved Integrated Robotic Intraocular Snake: Analyses of the Kinematics and Drive Mechanism of the Dexterous Distal Unit." *Journal of Medical Robotics Research*. vol. 06, no.01n02, pp.1-13, p. 2140001, May 2021, <https://doi.org/10.1142/S2424905X21400018>.
- [J29] Ebrahimi, A., Urias, M., Patel, N., Taylor, R.H., Gehlbach, P.L. and **Iordachita, I.**, "Adaptive Control Improves Sclera Force Safety in Robot-Assisted Eye Surgery: A Clinical Study." *IEEE Transactions on Bio-Medical Engineering*. vol. 68, no.11, pp.3356-3365, Nov. 2021, DOI: [10.1109/TBME.2021.3071135](https://doi.org/10.1109/TBME.2021.3071135)
- [J30] Rezaee, M., **Iordachita, I.** and Wong, J.W., "Ultrahigh dose-rate (FLASH) X-Ray irradiator for pre-clinical laboratory research." *Physics in Medicine & Biology*. vol. 66, no. 9, pp.1-10, p. 095006, Apr. 2021, <https://doi.org/10.1088/1361-6560/abf2fa>
- [J31] Dai, J., He, Z., Fang, G., Wang, X., Li, Y., Cheung, C.L., Liang, L., **Iordachita, I.**, Chang, H.C. and Kwok, K.W., "A Robotic Platform to Navigate MRI-guided Focused Ultrasound System." *IEEE Robotics and Automation Letters*. vol. 6, no. 3, pp.5137-5144, Jul. 2021, DOI: [10.1109/LRA.2021.3068953](https://doi.org/10.1109/LRA.2021.3068953)
- [J32] Sommersperger, M., Weiss, J., Nasser, M.A., Gehlbach, P., **Iordachita, I.** and Navab, N., "Real-time tool to layer distance estimation for robotic subretinal injection using intraoperative 4D OCT." *Biomedical Optics Express*, vol.12, no.2, pp.1085-1104. Feb. 12, 2021, <https://doi.org/10.1364/BOE.415477>
- [J33] Li, G., Patel, N.A., Sharma, K., Monfaredi, R., Dumoulin, C., Fritz, J., **Iordachita, I.** and Cleary, K., "Body-Mounted Robotics for Interventional MRI Procedures." *IEEE Transactions on Medical Robotics and Bionics*, vol. 2, no. 4, pp.557-560, On-line 13 Oct. 2020, DOI: [10.1109/TMRB.2020.3030532](https://doi.org/10.1109/TMRB.2020.3030532)
- [J34] Sefati, S., Gao, C., **Iordachita, I.**, Taylor, R.H. and Armand, M., 2020. Data-Driven Shape Sensing of a Surgical Continuum Manipulator Using an Uncalibrated Fiber Bragg Grating

- Sensor. *IEEE Sensors Journal*. vol. xx, no. x, pp.1-12, On-line 01 Oct. 2020, DOI: [10.1109/JSEN.2020.3028208](https://doi.org/10.1109/JSEN.2020.3028208)
- [J35] Ebrahimi, A., Alambeigi, F., Sefati, S., Patel, N., He, C., Gehlbach, P.L. and **Iordachita, I.**, “Stochastic Force-based Insertion Depth and Tip Position Estimations of Flexible FBG-Equipped Instruments in Robotic Retinal Surgery.” *IEEE/ASME Transactions on Mechatronics*. vol. 26, no. 3, pp.1512-1523, Jun. 2021, DOI: [10.1109/TMECH.2020.3022830](https://doi.org/10.1109/TMECH.2020.3022830)
- [J36] Sefati, S., Hegeman, R., Alambeigi, F., **Iordachita, I.**, Kazanzides, P., Khanuja, H., Taylor, R. and Armand, M., “A Surgical Robotic System for Treatment of Pelvic Osteolysis Using an FBG-Equipped Continuum Manipulator and Flexible Instruments.” *IEEE/ASME Transactions on Mechatronics*., vol. xx, no. x, pp.1-12, On-line 30 Aug. 2020, DOI: [10.1109/TMECH.2020.3020504](https://doi.org/10.1109/TMECH.2020.3020504)
- [J37] Urias, M.G., Patel, N., Ebrahimi, A., **Iordachita, I.** and Gehlbach, P.L., “Robotic Retinal Surgery Impacts on Scleral Forces: In Vivo Study.” *Translational Vision Science & Technology*, vol. 9, no. 10, pp. 109, Sep. 2020, <https://doi.org/10.1167/tvst.9.10.2>
- [J38] Lo Presti, D., Massaroni, C., Leitão, C.S.J., Domingues, M.F., Sypabekova, M., Barrera, D., Floris, I., Massari, L., Oddo, C.M., Salvador Sales, S., **Iordachita, I.I.**, Daniele Tosi, D., Emiliano Schena, E., "Fiber Bragg Gratings for medical applications and future challenges: a review," in *IEEE Access*, vol. 8, pp. 156863-156888, Sep. 2020, DOI: [10.1109/ACCESS.2020.3019138](https://doi.org/10.1109/ACCESS.2020.3019138)
- [J39] Tsumura, R., **Iordachita, I.** and Iwata, H., Fine-Needle Insertion Method for Minimizing Deflection in Lower-Abdomen: In Vivo Evaluation. *The International Journal of Medical Robotics and Computer Assisted Surgery*, p.e2139. vol. 16, no. 6, pp.1-12, Dec. 2020, <https://doi.org/10.1002/rcs.2139>
- [J40] Li, G., Patel, N., Melzer, A., Sharma, K., **Iordachita, I.I.**, and Cleary, K., “MRI-guided lumbar spinal injections with body-mounted robotic system: cadaver studies.” *Minimally Invasive Therapy & Allied Technologies*, vol. 31, no. 2, pp.297-305, Feb. 2022, DOI: [10.1080/13645706.2020.1799017](https://doi.org/10.1080/13645706.2020.1799017)
- [J41] Li, G., Patel, N., Wang, Y., Dumoulin, C., Loew, W., Loparo, O., Schneider, K., Sharma, K., Cleary, K., Fritz, J. and **Iordachita, I.I.**, “Fully Actuated Body-Mounted Robotic System for MRI-Guided Lower Back Pain Injections: Initial Phantom and Cadaver Studies.” *IEEE Robotics and Automation Letters*. vol. 5, no. 4, pp.5245-5251, Jul. 2020, DOI: [10.1109/LRA.2020.3007459](https://doi.org/10.1109/LRA.2020.3007459)
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### Other Papers

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- [O2] Song, S., Cho, N., Tokuda, J., Hata, N., Tempany, C., Fichtinger, G., **Iordachita, I.**, "MRI compatibility study of a pneumatically actuated robotic system for transperineal prostate needle placement," *3rd Annual Image-Guided Therapy Workshop*, Arlington, VA, Mar. 2010.
- [O3] Fischer, G.S., **Iordachita, I.**, U-Thainual, P., Carrino, J.A., Fichtinger, G., "A Training Suite for Image Overlay and other Needle Insertion Techniques," *2008 MICCAI Workshop - Augmented Environments for Medical Imaging and Computer-Aided Surgery (AMI-ARCS)*, Sep. 2008.
- [O4] Krieger, A., Guion, P., Csoma, C., **Iordachita, I.**, Singh, A.K., Kaushal, A., Whitcomb, L.L., Fichtinger, G., "MRI Guided Prostate Biopsy and Marker Placements," *Workshop on Clinical Image-Guided Therapy: Opportunities and Needs*, Rockville, Maryland, Mar. 2008.
- [O5] Song, D., Deguet, A., Jain, A., Armour, E., Le, Y., Blevins, J., **Iordachita, I.**, Burdette, E.C.,

- Fichtinger, G., "Registered Ultrasound and Fluoroscopy for Intraoperative Dynamic Dosimetry in Prostate Brachytherapy," *Workshop on Clinical Image-Guided Therapy: Opportunities and Needs*, Rockville, Maryland, Mar. 2008.
- [O6] Fichtinger, G, Fiene, J., Kennedy, C., **lordachita, I.**, Kronreif, G., Song, D.Y., Burdette, E.C., Kazanzides, P., "Robotic Assistance for Ultrasound Guided Prostate Brachytherapy," *Workshop on Clinical Image-Guided Therapy: Opportunities and Needs*, Rockville, Maryland, Mar. 2008.
- [O7] Fichtinger, G, Fiene, J., Kennedy, C., **lordachita, I.**, Kronreif, G., Song, D.Y., Burdette, E.C., Kazanzides, P., "Robotic Assistance for Ultrasound Guided Prostate Brachytherapy," *The Fourth AdMeTech Foundation Conference: Ending the Era of Blind Cancer Care & Creating a Future of Image-Guided, Minimally Invasive Diagnosis & Treatment*. Washington, DC, Sep. 2007.
- [O8] Catrina, G., **lordachita, I.**, Margine, A., "The Linear Trajectory Precision for Industrial Robots," *Third International Conference on Electro-mechanic and Energetic Systems (SIELMEN-2001)*, ISBN 9975-9638-8-9, Chisinau, Moldova, Vol. III, pp. 207-210, 2001.
- [O9] **lordachita, I.**, Stoianovici, D., Catrina, G., "A Mechanism for Rotation and Insertion of the Needles Used in Medical Procedures," *Third International Conference on Electro-mechanic and Energetic Systems (SIELMEN-2001)*, ISBN 9975-9638-8-9, Chisinau, Moldova, Vol. III, pp. 203-206, 2001.
- [O10] Catrina, G., **lordachita, I.**, Popa, D., "Consideration over the Optimal Design of Elements of Machines," *1<sup>st</sup> Conference with International Participation of the Millennium: The Auto vehicle – Safety, Comfort and Durability (SMAT 2001)*, Craiova, Romania, ISBN 973-8043-23-4, vol. I, pp. 331-336, 2001. (in Romanian)
- [O11] **lordachita, I.**, "Considerations over the Mechanisms that Provide Snake-like Locomotion," *The 2<sup>nd</sup> National Workshop on Mobile Robots (WMRC-2001)*, Craiova, Romania, ISBN 973-8043-39-5, 2001. (in Romanian)
- [O12] Tudor, M., **lordachita, I.**, "Studies on the Bio-mechanisms for Walking with Creeping Locomotion with Applicability of Mobile Robots," *The 2<sup>nd</sup> National Workshop on Mobile Robots (WMRC-2001)*, Craiova, Romania, ISBN 973-8043-39-5, 2001. (in Romanian)
- [O13] **lordachita I.**, "Realizations regarding the robot-mechanisms for dragging locomotion," *The 4<sup>th</sup> Conference New Technologies and Designing Methods in Mechanical Engineering (INGMEC 98)*, Craiova, Romania, ISSN 1223-5296, Vol. I, pp. 405-410, 1998. (in Romanian)
- [O14] **lordachita, I.**, "Aspects Regarding the Inverse-Kinematics of the Dragging Locomotion Mechanisms," *Proceedings of the Scientific Communications Meeting of "Aurel Vlaicu" University, Third Edition*, Arad, Romania, vol. III, pp. 49-54, 1996. (in Romanian)
- [O15] **lordachita, I.**, Margine A., "Dragging Locomotion Mechanisms – An Experimental Model," *Proceedings of the Scientific Communications Meeting of "Aurel Vlaicu" University, Third Edition*, Arad, Romania, vol. III, pp. 55-60, 1996. (in Romanian)
- [O16] **lordachita, I.**, "Contributions about Kinematics of Dragging Locomotion Mechanisms," *Proceedings of the Scientific Communications "The Scientific Research Implication in Development and Modernization of Processing Methods"*, Sibiu, Romania, pp. 209-214, 1995. (in Romanian)
- [O17] **lordachita, I.**, "Kinematics of the Dragging Locomotion Mechanisms," *3rd International Scientific Conference "Modern Machines and Technologies", MTeM'95*, Cugir, Romania, 1995. (in Romanian)
- [O18] Georgescu, S., **lordachita, I.**, "Software Package for the Masses Calculus of Tubes Presenting Ribs," *National Symposium PRASIC'94*, Brasov, Romania, pp. ,61-68, 1994 (in Romanian)
- [O19] **lordachita, I.**, "About the Structure of Locomotion Dragging Mechanisms," *3rd National Conference of Technologies and Numerical Drawing Methods in Engineering*, Craiova,

- Romania, vol. II, pp. 258-265, 1994. (in Romanian)
- [O20] **Iordachita, I.**, Dumitru, N., "Locomotion Systems for Digging Tunnel Machine based on Bionics Principles," *VI-th National Symposium on MTM*. Timisoara, Romania, vol. 1, MTM paper #41, 1992. (in Romanian)
- [O21] Dumitru, N., **Iordachita, I.**, "Algorithm for Gearing Mechanisms Study," *VI-th National Symposium on MTM*, Timisoara, Romania, vol. 2 MTM, paper #32, 1992. (in Romanian)
- [O22] Catrina, G., Radulescu, M., **Iordachita, I.**, Margine, A., Bogdan, R., "Stand for testing of Differential Transmissions Screw-nut," *VI-th National Symposium on MTM*, Timisoara, Romania, vol. 2 MTM, paper #47, 1992. (in Romanian)
- [O23] **Iordachita, I.**, Sabau, A., "Working Space Volume Calculus for the RD5NT Robot using the Monte Carlo Method," *Proceedings of the Scientific Communications "Conception, Technology and Management in Engineering,"* Iasi, Romania, pp.123-128, 1992. (in Romanian)

## PRESENTATIONS

### Conferences and Workshops (excluding paper presentations)

- [T1] "Optimized Manipulator for in-bore MRI-guided Transperineal Prostate Biopsy," invited talk to *Workshop on Robotics Microsurgery and Image-Guided Surgical Interventions*, IEEE BioRob 2014, SaoPaulo, Brazil, August 12th, 2014.
- [T2] "Robot-assisted retinal microsurgery: current challenges and future perspectives," 16<sup>th</sup> EURETINA Congress, Bella Center, Copenhagen, Denmark, September 11<sup>th</sup>, 2016.
- [T3] "Optical Fiber-based Sensorized Instruments for Robot-Assisted Surgery," invited talk to *Workshop on Current and Future Challenges in Robotics Research for Biomedical Applications*, IEEE EMBC 2017, Jeju Island, South Korea, July 11th, 2017.
- [T4] "Fundamentals of Engineering to Understand Robotic Surgery," 17<sup>th</sup> EURETINA Congress, CCIB, Barcelona, Spain, September 9<sup>th</sup>, 2017.
- [T5] "Dexterous Continuum Manipulators for Robot-Assisted Surgery," invited talk to *Workshop on Continuum Robots in Medicine – Design, Integration, and Applications*, IEEE IROS 2017, Vancouver, Canada, September 24th, 2017.
- [T6] "Safe Tissue Manipulation in Retinal Microsurgery via Motorized Instruments with Force Sensing," invited talk to *Focused Session – Sensor for Medical Robotics*, IEEE SENSORS 2017, Glasgow, Scotland, UK, October 31st, 2017.
- [T7] "Safe Tissue Manipulation in Retinal Microsurgery via Force Sensing Instruments," invited semi-plenary talk to *International Symposium on Medical Robotics*, ISMR 2018, Atlanta, GA, March 1<sup>st</sup>, 2018.
- [T8] "Enabling Technology for Safe Robot-Assisted Vitreoretinal Surgery," invited talk to *2<sup>nd</sup> workshop on Advances in Image-Guided Ophthalmic Interventions*, Hamlyn Symposium 2018, London, UK, June 24<sup>th</sup>, 2018.
- [T9] "Robot-Assisted Retinal Surgery," invited keynote speech to *25<sup>th</sup> Edition of World Congress of Ophthalmologist*, London, UK, November 8<sup>th</sup>, 2018.
- [T10] "Safe Robot-Assisted Retinal Surgery," invited talk to *Workshop Robot-Assisted Eye Surgery: Steps Toward Operating Room*, *International Symposium on Medical Robotics*, ISMR 2019, Atlanta, GA, April 3<sup>rd</sup>, 2019.
- [T11] "Shape Sensing Based Navigation of Flexible Medical Devices," invited talk to *Symposium "Advanced in Device Navigation"*, *Society for Image-Guided Neurointerventions 2019 Conference (SIGN 2019)*, Baltimore, MD, June 10<sup>th</sup>, 2019.
- [T12] "Toward Intelligent Robotic Assistance for Safe Manipulation in Retinal Surgery" invited talk to *Cutting Edge Forum "Surgical Robotics with AI"*, IEEE/RSJ International Conference on

- Intelligent Robots and Systems (IROS), November 6<sup>th</sup>, 2019, Macau, CHINA
- [T13] “Safe Robot-Assisted Retinal Surgery,” invited talk to Workshop “Autonomous System in Medicine: Current Challenges in Design, Modeling, Perception, Control and Applications” IROS 2020, October 25<sup>th</sup>, 2020, (virtual)
- [T14] “Enabling Technology for Safe Robot-Assisted Retinal Surgery,” invited keynote speech to *1<sup>st</sup> International Conference on Advanced Research in Engineering, CARE 2020*, Craiova, Romania, October 30<sup>th</sup>, 2020. (virtual)
- [T15] “Shape-Sensing for Dexterous Continuum Manipulators,” invited talk to Workshop “Holistic Integration of Design, Sensing, and Intelligence in Dexterous Medical Robotics Systems” ICRA 2021, June 4<sup>th</sup>, 2021 (virtual)
- [T16] “Shape Sensing Based Navigation of Flexible Medical Devices,” invited talk to ISMR 2021 Workshop on “Sensing and Feedback in Dexterous Medical/Surgical Robotics”, November 17<sup>th</sup>, 2021, Georgia Tech, Atlanta, GA, USA
- [T17] “Needle Shape Detection for Interventional MRI,” invited talk to ISMR 2021 Workshop on “Improving clinical outcomes of image-guided needle-based interventions: development and clinical translation of new approaches”, November 17<sup>th</sup>, 2021, Georgia Tech, Atlanta, GA, USA
- [T18] “Shape-Sensing and Prediction using FBG-Sensorized Needles” invited talk to the 12<sup>th</sup> National Image Guided Therapy Workshop, May 19, 2022 (virtual)
- [T19] “Sensor-based Technology for Safe Robot-assisted Retinal Surgery,” invited talk to Workshop “ARVOS – Advanced Robotics and visualization for Ophthalmic Surgery”, IROS 2022, October 23<sup>rd</sup>, 2022, Kyoto, Japan
- [T20] “AI-based Technology for Safe Robot-assisted Retinal Surgery,” invited talk to Workshop “A Panacea or an Alchemy? – Benefits and Risks of Robot Learning in Medical Applications”, IROS 2022, October 27<sup>th</sup>, 2022, Kyoto, Japan
- [T21] “Needle Shape Detection for Interventional MRI,” invited talk to ISMR 2023 Workshop on “Recent progress in MRI-guided robotics”, April 19<sup>th</sup>, 2023, Georgia Tech, Atlanta, GA, USA
- [T22] “Enabling Technology for Safe Robot-Assisted Retinal Surgery” invited talk to Workshop “Force and Shape Perception for Surgical Instruments and Robots”, ICRA 2023, June 2<sup>nd</sup>, ExCel, London, UK
- [T23] “Enabling Technology for Safe Robot-Assisted Retinal Surgery,” invited keynote speech to *8<sup>th</sup> International Workshop on New Trends in Medical and Service Robotics, MESROB 2023*, Craiova, Romania, June 7<sup>th</sup>, 2023. (virtual)

### Invited University Colloquia and Seminars

- [T24] “Robot-assisted retinal microsurgery: current challenges and future perspectives,” Worcester Polytechnic Institute, Worcester, MA, USA, December 5<sup>th</sup>, 2014.
- [T25] “Optical Fiber-based Sensorized Instruments for Robot-Assisted Surgery,” SPL, Brigham and Women’s Hospital, Boston, MA, USA, March 23<sup>rd</sup>, 2016
- [T26] “Safe Robot-Assisted Retinal Surgery,” LCSR Seminar, JHU, Baltimore, MD. USA, April 17<sup>th</sup>, 2019
- [T27] “Enabling Technology for Safe Robot-assisted Retinal Surgery,” Rowan University, Henry M. Rowan College of Engineering, Glassboro, NJ, USA, October 22<sup>nd</sup>, 2020. (virtual)
- [T28] “Sensor-based Technology for Safe Robot-assisted Retinal Surgery,” Seminar, Dept. of Computer and Software Engineering, Institute of Biomedical Engineering, Polytechnique Montréal, Quebec, Canada, March 22<sup>nd</sup>, 2021, (virtual)
- [T29] “Sensor-based Technology for Safe Robot-assisted Retinal Surgery,” Seminar, 2021 Fall School on Medical Robotics, Georgia Institute of Technology, Atlanta, GA, USA, November 16<sup>th</sup>, 2021 (virtual)

- [T30] “Enabling Technology for Safe Robot-assisted Retinal Surgery,” MRC, The Chinese University of Hong Kong, Hong Kong, SAR, China, March 16<sup>th</sup>, 2023.
- [T31] “Enabling Technology for Safe Robot-assisted Retinal Surgery” Seminar, 2023 Spring School on Medical Robotics, Georgia Institute of Technology, Atlanta, GA, USA, April 18<sup>th</sup>, 2023.
- [T32] “Enabling Technology for Safe Robot-assisted Retinal Surgery” Seminar, Guest Lecture – Computer Integrated Surgery I, Johns Hopkins University, Baltimore, MD, USA, November 30<sup>th</sup>, 2023.

## RESEARCH FUNDING AND SUPPORT

### Current:

1. Title: Multi-Scale Medical Robotics Center.  
Dates: 6/01/2020-5/31/2025  
Grantor: Chinese University of Hong Kong  
Grant #: Multi-Scale Medical Robotics Center (Russell Taylor, PI)  
Institution: Johns Hopkins University  
Amount: \$2,500,000 (JHU total)  
Summary: JHU’s role focuses on image-guided robotic interventions with the development of image-based automation in robotic surgery, high performance robotic systems for intra-operative MRI-guided interventions, image-guided robotic platform for minimally invasive orthopedic surgery, and a low-cost surgical robotic arm system for universal surgeries  
Role: Co-Investigator
2. Title: MRI Compatible Robot for Improved Pain Injections in Adults and Children.  
Dates: 6/01/2018-2/28/2024  
Grantor: National Institutes of Health  
Grant #: 1 R01 EB025179-01 (Kevin Cleary, PI)  
Institution: Children’s National Medical Center, subcontract Johns Hopkins University  
Amount: \$1,169,857 (JHU total)  
Summary: Develop and evaluate a patient-mounted MRI-compatible robot for needle guidance for pain treatment injections in adult and pediatric interventional procedures.  
Role: Principal Investigator (of Johns Hopkins University sub-contract)
3. Title: Automating mosquito microdissection for a malaria PfSPZ vaccine  
Dates: 07/01/2021-06/30/2024  
Grantor: NIH SBIR (Subcontract from Sanaria)  
Grant #: R44 AI134500-01(Russell Taylor, PI)  
Institution: Johns Hopkins University  
Amount: \$ 1,134,960  
Summary: This project builds upon our earlier and ongoing collaboration with Sanaria in developing production processes for a malaria vaccine. JHU’s roles include assisting in translation of our previously developed prototypes into GMP production and in developing a fully automated robotic system to increase production.  
Role: Co-Investigator
4. Title: Adaptive Percutaneous Prostate Interventions using Sensorized Needle.  
Dates: 8/01/2019-1/31/2024  
Grantor: National Institutes of Health  
Grant #: 1R01 CA235134-01(Junichi Tokuda, PI)  
Institution: BWH, subcontract Johns Hopkins University  
Amount: \$1,170,186

Summary: Develop and validate optical fiber-based shape-sensing needle that can detect the deviation of needle in vivo and feed it back to the physician in real-time.

Role: Principal Investigator (of Johns Hopkins University sub-contract, MPI)

5. Title: X-ray/optical tomographic guidance and assessment for pre-clinical radiation research

Dates: 6/01/2019-3/31/2024

Grantor: National Institutes of Health

Grant #: 1R37 CA230341-01 (Ken Wang, PI)

Institution: UTSW

Amount: \$314,480 (Total)

Summary: Advance the in vivo cancer imaging capability of SARRP to include quantitative bioluminescence and fluorescence tomography.

Role: Co-Investigator

6. Title: Enabling Technology for Safe Robot-assisted Surgical Micromanipulation

Dates: 4/01/2022-12/31/2024

Grantor: National Institutes of Health

Grant #: 2R01EB023943-04A1 (Iulian Iordachita, MPI)

Institution: Johns Hopkins University

Amount: \$1,265,816

Summary: The goal of this project is to develop and evaluate enabling technology for safe and reliable bilateral, semi-autonomous robotic assistance integrated with force sensing instruments to assist the surgeon with sensorimotor guidance for safe retinal vein cannulation.

Role: Principal Investigator

7. Title: Surgical Robotic System for Long-Bone Fracture Reduction

Dates: 02/15/2022-01/31/2024

Grantor: National Science Foundation

Grant #: NSF-PFI 2141099 (Abedin-Nasab, Mohammad, PI)

Institution: Rowan University, NJ

Amount: \$249,999 (Total)

Summary: The goal of this project is to develop and evaluate a robotic system for treating femoral shaft and hip fractures, providing mechanical assistance to the clinician for bone gripping, positioning, and highly accurate alignment of the bone fragments.

Role: Co-Investigator

8. Title: An ultra-high (FLASH) dose rate x-ray cabinet system for pre-clinical laboratory radiation research

Dates: 08/01/2021-07/31/2025

Grantor: National Institutes of Health

Grant #: 1R01CA262097-01 (Rezaee, Mohammad, PI)

Institution: Johns Hopkins University, JHMI

Amount: \$2,140,785

Summary: The goal of this project is to develop a self-shield kilovoltage x-ray cabinet system with the capabilities of delivering both FLASH and conventional dose-rate irradiations for preclinical laboratory research.

Role: Co-Investigator

#### **Completed:**

9. Title: Enabling technology for image-guided robot-assisted sub-retinal injections.

Dates: 9/20/2019-6/30/2023

Grantor: National Institutes of Health

Grant #: 1R01 EB025883-01A1 (Iulian Iordachita, PI)

Institution: Johns Hopkins University

Amount: \$1,453,260

Summary: Develop and test a cooperatively controlled robotic system that in conjunction with force-sensing microsurgical instruments guided by 4D intraoperative Optical Coherence Tomography could enable safe and reliable access to subretinal space.

Role: Principal Investigator

10. Title: An ultra-high (FLASH) dose rate x-ray cabinet system for pre-clinical laboratory radiation research

Dates: 8/01/2021-7/31/2025

Grantor: National Institutes of Health

Grant #: 1R01CA262097-01 (Rezaee, Mohammad, PI)

Institution: JHU

Amount: \$2,640,721 (Total)

Summary: The goal of this project is to develop a self-shield kilovoltage x-ray cabinet system with the capabilities of delivering both FLASH and conventional dose-rate irradiations for pre-clinical laboratory research.

Role: Co-Investigator

11. Title: Patient-specific narrow beam breast CT

Dates: 5/01/2021-11/30/2022

Grantor: National Institutes of Health

Grant #: 1R43CA261381 (Ghazi, Peymon, PI)

Institution: Sub-award from Malcova LLC

Amount: \$400,000 (Total)

Summary: The goal is to develop dedicated breast CT technology to improve the sensitivity and specificity of breast cancer detection in women with dense breasts.

Role: Co-Investigator

12. Title: MRI Compatible body-mounted robot to streamline pediatric shoulder arthrography.

Dates: 9/15/2016-6/30/2022

Grantor: National Institutes of Health

Grant #: 1R01 EB020003-01 (Kevin Cleary, PI)

Institution: Children's national Medical Center, subcontract Johns Hopkins University

Amount: \$593,726 (JHU Total)

Summary: Develop and test a new patient-mounted MRI-compatible shoulder arthrography robot for needle guidance in pediatric interventional procedures.

Role: Principal Investigator (of Johns Hopkins University sub-contract)

13. Title: Enabling Technology for Safe Robot-assisted Surgical Micromanipulation

Dates: 3/15/2017-01/31/2021

Grantor: National Institutes of Health

Grant #: 1R01EB023943-01 (Iulian Iordachita, PI)

Institution: Johns Hopkins University

Amount: \$1,017,478/Total

Summary: The goal is to develop a cooperatively controlled robotic system with enhanced sensorimotor capabilities that in conjunction with multifunction force-sensing microsurgical instruments could enable safe robot-assisted retinal surgery.

Role: Principal Investigator

14. Title: Quantitative bioluminescence tomography for pre-clinical radiotherapy research

Dates: 7/01/2019-6/30/2023

Grantor: National Institutes of Health

Grant #: 1R01 CA240811-01 (Ken Wang, PI)

Institution: Johns Hopkins University  
Amount: \$276,046 (JHU/Y1)  
Summary: Develop and evaluate a tabletop quantitative bioluminescence tomography system readily adopted by small animal commercial irradiators.  
Role: Co-Investigator

15. Title: Research and Development on a Novel Robotic System for Microsurgery  
Dates: 2/01/2017-3/31/2020  
Grantor: Galen Robotics, Inc  
Grant #: Galen Robotics (Russell Taylor, PI)  
Institution: Johns Hopkins University  
Amount: \$1,363,808  
Summary: This is an industry-sponsored project to develop novel sensor-based tools, image-guidance methods, and applications for a new cooperatively controlled surgical robot for head-and-neck microsurgery.  
Role: Co-Investigator

16. Title: An Active Handheld Micromanipulator.  
Dates: 8/01/2015-7/31/2019  
Grantor: National Institutes of Health  
Grant #: 2R01 EB000526-07 (Cameron Riviere, PI)  
Institution: Carnegie Mellon University, subcontract Johns Hopkins University  
Amount: \$354,825  
Summary: Develop and test a new handheld micromanipulator that performs active tremor compensation in microsurgery.  
Role: Principal Investigator (of Johns Hopkins University sub-contract)

17. Title: Objective assessment of surgical competence in a septoplasty model.  
Dates: 7/01/2015-6/30/2020  
Grantor: National Institutes of Health  
Grant #: R01DE025265 (Masaru Ishii, PI)  
Institution: Johns Hopkins University  
Amount: \$582,025/2016  
Summary: Our project aims to provide educators with an integrated objective skills assessment platform and tools for objective determination of competency, which can be readily deployed across graduate surgical training programs in the country.  
Role: Co-Investigator

18. Title: Enabling technology for MRI-guided prostate interventions  
Dates: 9/12/2011-7/31/2016  
Grantor: National Institutes of Health  
Grant #: 2R01CA111288-06 (Clare Tempany, PI)  
Institution: Brigham and Women's Hospital, subcontract Johns Hopkins University  
Amount: \$ 4,090,575  
Summary: Develop technology for transrectal needle-based biopsy and local therapy of prostate cancer in conventional closed MRI scanner.  
Role: Principal Investigator (of Johns Hopkins University sub-contract)

19. Title: An integrated x-ray/optical tomography system for preclinical radiation research.  
Dates: 7/01/2011-6/30/2015  
Grantor: National Institutes of Health  
Grant #: R01 CA158100-01 (John Wong, PI)  
Institution: Johns Hopkins Medical Institutions, subcontract Johns Hopkins University  
Amount: \$1,682,750  
Summary: The goal is to develop an integrated x-ray/bioluminescence tomography system that can function as a standalone imaging research system and also dock to the SARRP to guide focal

irradiation.

Role: Principal Investigator (of Johns Hopkins University sub-contract)

20. Title: Integrated 3D X-Ray/ultrasound guided radiation therapy of soft tissue targets

Dates: 10/15/2011-9/31/2015

Grantor: National Institutes of Health

Grant #: 1R01CA161613-01 (John Wong, PI)

Institution: Johns Hopkins Medical Institutions

Amount: \$1,559,926

Summary: The goal is to develop an integrated x-ray/ultrasound tomography system on board a medical accelerator to ensure accurate irradiation of abdominal targets that have been difficult to localize with x-ray CT alone.

Role: Co-Investigator

21. Title: An Active Handheld Micromanipulator.

Dates: 2/1/2011 – 1/31/2015

Grantor: National Institutes of Health

Grant #: 1 R01 EB000526-04A1 (Cameron Riviere, PI)

Institution: Carnegie Mellon University, subcontract Johns Hopkins University

Amount: \$988,130

Summary: Develop and test a new handheld micromanipulator that performs active tremor compensation in microsurgery.

Role: Principal Investigator (of Johns Hopkins University sub-contract)

22. Title: A Microsurgical Assistant System.

Dates: 8/1/2008 – 6/31/2014

Grantor: National Institutes of Health

Grant #: 1 R01 EB 007969-01 A1 (Russell Taylor, PI)

Institution: Johns Hopkins University

Amount: \$5,885,314

Summary: Develop technology and systems addressing fundamental limitations in current microsurgical practice, using vitreoretinal surgery as the initial focus. This includes development of a "surgical workstation" that is interfaced to a stereo visualization subsystem and a family of novel sensors, instruments, and robotic devices.

Role: Co-Investigator

23. Title: OCT Imaging and Assistive Systems for Cochlear Implant Surgery

Dates: 2/01/2012 – 4/31/2014

Grantor: Cochlear Corporation

Grant #: 1 (Russell Taylor, PI)

Institution: Johns Hopkins University

Amount: \$ 238,000

Summary: Develop the technology for imaging the cochlea canal and assisting cochlea implant insertion

Role: Co-Investigator

24. Title: Calibration and Commissioning of a Small Animal Radiation Research Platform (SARRP) for Pre-clinical Research

Dates: 09/01/09 – 08/31/12

Grantor: Gulmay Medical Ltd

Grant #: 1 (John Wong, PI)

Institution: Johns Hopkins Medical Institutions

Amount: \$100,000

Summary: The goals are to provide continue technical support and to transfer the know-how from Hopkins to Gulmay in their commercialization of the first-generation Small Animal Radiation Research Platform

Role: co-Investigator

25. Title: Engineering Research Center for Computer-Integrated Surgical Systems and Technology.

Dates: 9/1/1997-5/31/2010

Grantor: National Science Foundation

Grant #: EEC 9731748 (Russell Taylor, PI)

Institution: Johns Hopkins University

Amount: \$30,000,000 (for 10 years)

Summary: The CISST ERC is a multi-institutional, multidisciplinary center whose focus is of basic science, computer-based technology, and engineered systems working cooperatively with surgeons to significantly change the way surgical procedures are carried out in the 21st century. Significant research focuses include modeling and analysis for treatment planning and control, robotics and human interfaces and systems for minimally invasive, image-guided percutaneous therapy and microsurgery.

Role: Senior Research Staff

26. Title: R01: Transrectal Prostate Therapy Robot in Closed MRI Scanner

Dates: 9/2003 – 7/31/2009

Grantor: National Institutes of Health,

Grant #: 1 R01 EB002963-01 (Louis Whitcomb, PI)

Institution: Johns Hopkins University

Amount: \$2,030,342

Summary: The major goal of this project is to design and develop a robot assisted system for transrectal needle placement inside closed MRI magnets for prostate interventions.

Role: Senior Research Staff

27. Title: Enabling technology for MRI-guided prostate interventions

Dates: 6/1/2006 – 5/31/2011

Grantor: National Institutes of Health,

Grant #: R01CA111288-01 (Clare Tempany, PI)

Institution: Brigham and Women's Hospital, Subcontract Johns Hopkins University

Amount: \$220,000 (Johns Hopkins University)

Summary: Develop technology for transrectal needle-based biopsy and local therapy of prostate cancer in conventional closed MRI scanner.

Role: Senior Research Staff

28. Title: Image Overlay for MRI-Guided Needle Insertion

Dates: 7/01/2007 – 6/30/2009

Grantor: National Institutes of Health

Grant #: R01 CA118371 (John Carrino, PI)

Institution: Johns Hopkins University

Amount: \$300,000

Summary: The goal of this project is to make diagnostic closed high-field MRI scanners available for guiding needle placement with 2D Image Overlay technique.

Role: Senior Research Staff

29. Title: An Image Guided Small Animal Radiation Research Platform

Dates: 4/1/2005 – 3/31/2008

Grantor: National Institutes of Health

Grant #: 1 RO1 CA108449-01 (John Wong, PI)

Institution: Johns Hopkins University

Amount: \$253,553 (Y3 total)

Summary: The goal of this project is to develop and test an image guided small animal radiation research platform (SARRP) that will accurately deliver complex ionizing radiation dose distributions in small animal tumor model systems (mice, rats and rabbits).

Role: Senior Research Staff

30. Title: C-arm Fluoroscopy in Prostate Brachytherapy  
Dates: 4/1/2005 – 3/31/2008  
Grantor: National Institutes of Health  
Grant #: 2R44CA099374-02 (Cliff Burdette, PI),  
Institution: Johns Hopkins University  
Amount: \$253,000 (Johns Hopkins University)  
Summary: Utilize C-arm fluoroscopy to determine seed locations in prostatic implants and register them to ultrasound space, to provide intra-operative implant optimization  
Role: Senior Research Staff
31. Title: Ultrasound Ablation of Bone Cancer with CT Fluoroscopy Guidance  
Dates: 9/21/2005 – 9/31/2007  
Grantor: National Institutes of Health  
Grant #: 1R43CA112852-01 (Burdette)  
Institution: Johns Hopkins University  
Amount: \$22,000 (Johns Hopkins University)  
Summary: Develop a system for interstitial ultrasound ablation of metastatic bone cancer  
Role: Senior Research Staff
32. Title: Robotic Needle Placement and Injection in Rodents  
Dates: 9/10/2003 – 08/31/2005  
Grantor: National Institutes of Health  
Grant #: R01 CA84596  
Institution: Memorial Sloan Kettering Cancer Center  
Amount: \$167,000 (Johns Hopkins University)  
Summary: This is a subcontract from Memorial Sloan Kettering Cancer Center to develop an image-guided robot system for small animal research. Specifically, the robot is used to insert a measurement probe into anatomic targets that are identified in a preoperative PET image.  
Role: Senior Research Staff
33. Title: Image Overlay for MRI-Guided Needle Insertions  
Dates: 10/01/2002 – 9/30/2006  
Grantor: National Institutes of Health  
Grant #: R01 CA118371  
Institution: Siemens Corporate Research  
Amount: \$219,000 (Johns Hopkins University)  
Summary: The goal of this project is make diagnostic closed high-field MRI scanners available for guiding needle placement with 2D Image Overlay technique  
Role: Senior Research Staff
34. Title: Studies on Surgical Robotics  
Dates: 10/01/2002 – 09/31/2003  
Grantor: Japan Society for the Promotion of Science, a Japanese Government agency  
Institution: Graduate School of Frontier Science, the University of Tokyo, JAPAN  
Amount: \$68,000  
Summary: The goal of this project is to develop new robotic devices for medical applications.  
Role: co-Investigator
35. Title: Studies on Biologically Inspired Mechanisms for Locomotion  
Dates: 06/1993 – 09/1997  
Grantor: Ministry of Education/Ministry of Research and Youth, Romania  
Grant #: 5006/1993, 468C/1994, 798B/1995, 663/1996, 663/1997  
Institution: University of Craiova, Romania  
Summary: The goal of this project is to evaluate the possibility of developing new mechanisms for robots' locomotion based on animals' locomotion.

Role: co-Investigator

36. Title: Speed Transducers for Locomotives  
Dates: 1988 – 1989  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 2601  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Project manager

37. Title: Electrical Locomotive for 5000-6000 kW with Thyristors EB-01  
Dates: 1988 – 1989  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 2559  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

38. Title: Transformation of Electrical Diesel Locomotive 4000 CP in Electrical Locomotive with Diodes 2900 kW  
Dates : 1988 – 1989  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4119  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

39. Title: Electrical Shunting Diesel Locomotive type 623-BS2  
Dates: 1987 – 1988  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4114  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

40. Title: Electrical Shunting Locomotive LEM-1200 kW  
Dates: 1986 – 1989  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4105  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

41. Title: Electrical Diesel Locomotive 3000 CP ca-ca  
Dates: 1985 – 1986  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4106  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

42. Title: Electrical Locomotive for 3000-4000 kW (Bo-Bo) type Erc 438 CL1  
Dates: 1985 – 1986  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4102  
Institution: ICSIT-MTAE Craiova, Romania  
Role: Research Staff

43. Title: Electrical Diesel Locomotive, Tropical Climate, DE 626 BL2 and DE 633 BL2  
Dates: 1984 – 1986  
Grantor: SC "Electroputere" SA, Craiova, Romania  
Grant #: 4103

Institution : ICSIT-MTAE Craiova, Romania  
Role: Research Staff

## ADVISING AND MENTORING

### Current Postdoctoral Fellows

1. David Usevitch, Ph.D.

### Current Ph.D. Students

1. Dimitri Lezcano, Ph.D. student, Expected 2024
2. Mojtaba Esfandiari, Ph.D. student, Expected 2025
3. Yanzhou Wang, Ph.D. student, Expected 2025
4. Peiyao Zhang, Ph.D. student, (co-supervised), Expected 2025

### Current M.S. and M.S. Thesis Students

1. Shuyuan Wang, M.S.E., Expected 2024, JHU
2. Yi Wang, M.S.E. Expected 2024, JHU

### Previous Postdoctoral Fellows and Visiting Faculty

1. Yuki Horise, Ph.D., 2014-2015
2. Sohrab-Eslami, Ph.D., 2011-2014
3. Reza Monfaredi, Ph.D., 2012
4. Ki-Young Kim, Ph.D., 2013-2014
5. Sam Song, Ph.D., 2008-2010, co-supervised (Professor Louis Whitcomb, JHU)
6. Samuel Kadoury, Ph.D., Visiting faculty, Polytechnique Montréal, Canada, 2018
7. He Zhang, Ph.D., Visiting faculty, China, 2016-2017
8. Jingzhou Song, Ph.D., Visiting faculty, China, 2015-2016
9. Hao Liu, Ph.D., Visiting faculty, China, 2014-2015
10. Makoto Jinno, Ph.D., Visiting faculty, Kokushikan University, Japan, 2019
11. Niravkumar Patel, Ph.D., 2017-2020
12. Gang Li, Ph.D., 2018-2021
13. Alireza Alamdar, Ph.D., 2019-2022
14. Alejandro Martin-Gomez, Ph.D., co-supervised, 2022

### Previous Ph.D. Students

1. Depeng Liu, visiting PhD student, Shanghai Jiao Tong University, China
2. Shervin Dehghani, visiting PhD student, TUM, Germany, co-supervised with Prof. Nassir Navab
3. Ali Ebrahimi, Ph.D. 08, 2022. "Control and Estimation Methods Towards Safe Robot-assisted Eye Surgery." Currently Robotic Algorithms and Control Engineer, Intuitive Surgical Inc.
4. Alejandro Martin-Gomez, visiting Ph.D. TUM / Research technologist JHU, 2020-2021
5. Jiahao Wu, visiting Ph.D. student, CUHK, China, 12 months.
6. Xiaojun Fan, visiting Ph.D. student, China, 2019
7. Mingchuan Zhou, visiting Ph.D. student, TUM, Germany, 2019
8. Changyan He, visiting Ph.D. student, Beihang University, China, 2017-2019
9. Jiawen Yan, visiting Ph.D. student, China, 2018-2019
10. Frederic Monet, Ph.D. student, Canada, 2019
11. Berk Gonenc, Ph.D., 2017. "Force-sensing-based Multi-platform robotic Assistance for Vitreoretinal Surgery." Currently System analyst, Verb Surgical Inc.

12. Xingchi He, Ph.D., 2015. "Force-sensing Augmented Robotic Assistance for Retinal Microsurgery." Currently System analyst, Intuitive surgical Inc.
13. Shahriar Sefati, Ph.D. student, JHU, 2016-2018, co-supervised (Professor Mehran Armand, JHU).
14. Ryosuke Tsumura, visiting Ph.D. student, Waseda University, Japan, 2017, supervised.
15. Ehsan Azimi, Ph.D. student, JHU, 2016-2017, co-supervised (Professor Peter Kazanzides, JHU)
16. Maria Chatrasingh, visiting Ph.D. student, Mahidol University, Thailand, 2016-2017, supervised.
17. Jiangzhen Guo, visiting Ph.D. student, Beihang University, China, 2015-2016, supervised.
18. Gang Li, visiting Ph.D. student, Worcester Polytechnic Institute, MA, 2015, co-supervised (Professor Gregory Fischer, WPI)
19. Anzhu Goa, visiting Ph.D. student, Shenyang Institute of Automation, China, 2015, co-supervised, (Professor Mehran Armand, JHU).
20. Meng Li, visiting Ph.D. student, Beijing Institute of Technology, China, 2014-2015, supervised.
21. Fereshteh Aalamifar, Ph.D. student, JHU, 2013-2015, co-supervised (Professor Emad Bector, JHU).
22. Weijian Shang, visiting Ph.D. student, Worcester Polytechnic Institute, MA, 2013-2014, co-supervised, (Professor Gregory Fischer, WPI)
23. Chao (Alex) He, visiting Ph.D. student, Tianjin University, China, 2011-2012, co-supervised (Professor Russell Taylor, JHU);
24. Tutkun Sen, Ph.D. student, JHU, 2012-2016, co-supervised (Professor Peter Kazanzides, JHU)
25. Kevin Olds, Ph.D. student JHU, 2012-2013, co-supervised (Professor Russell Taylor, JHU).
26. Brian Hu, Ph.D. student, JHU, 2011, co-supervised (Professor Russell Taylor, JHU).
27. Reza Seifabadi, visiting Ph.D. student, Queen's University, Canada, 2010-2012, co-supervised (Professor Gabor Fichtinger, Queen's).
28. Greg Cole, visiting Ph.D. student, Worcester Polytechnic Institute, MA, 2010, co-supervised, (Professor Peter Kazanzides, JHU)
29. Paweena U-Thainual, visiting Ph.D. student, Queen's University, Canada, 2009-2012, co-supervised (Professor Gabor Fichtinger, Queen's).

#### **Previous M.S. and Thesis Students**

1. Simon Pannek, M.S.E. TUM, c-supervised, 2023
2. Jacynthe Francoeur, supervised, 2023, Polytechnique Montréal, Canada
3. Yangsheng Xu, M.S.E. Alumni, 2023, JHU
4. Jiarong Kang, M.S.E. Alumni, 2023, JHU
5. Botao Zhao, M.S.E., supervised, 2023, JHU.
6. Guanyun Liu, M.S.E., co-supervised, 2023 JHU
7. Yernar Zhetpissov, M.S.E., supervised, 2023, JHU.
8. Alexandra Chen, M.S.E., co-supervised, 2022, JHU
9. Huan Min, M.S.E., co-supervised, JHU
10. Vishnu Kolal, M.S.E., co-supervised, 2022, JHU
11. Guan hao (Dean) Fu, M.S.E., co-supervised, 2022, JHU
12. Kefan Song, M.S.E., supervised, 2022, JHU.
13. Boyang Xiao, M.S.E., supervised, 2022, JHU.
14. Min Jung Kim, M.S.E., supervised, 2022, JHU.
15. Kristina Mach, M.S.E., 2021, TUM, co-supervised
16. Ray Zhang, M.S. student, 2020-2021, JHU, supervised.
17. Yanzhou Wang, M.S. student, 2019-2021, JHU, supervised.
18. Ge Sun, M.S. student, 2020-2021, JHU, supervised.
19. Yangzhe Liu, M.S. student, 2020-2021, JHU, supervised.
20. Wanze Li, M.S. student, 2019-2021, JHU, supervised.
21. Michael Sommersperger, visiting M.S. student, TUM, Germany, 12 months, 2020, co-supervised.
22. Chris Bosch, visiting M.S. student, TUM, Germany, 6 months, 2020, co-supervised.
23. Robert Roth, visiting M.S. student, TUM, Germany, 6 months, 2020, supervised.
24. Emily Yang, M.S. student, 2019-2020, JHU, supervised.
25. Ji Woong Kim, M.S. student, 2019, JHU, co-supervised.
26. Jan Hagemeister, M.S. student, 2019, JHU, supervised.

27. Di Wu, visiting M.S. student, Germany, 2018-2019, Now Ph.D. student at KU Leuven, Belgium
28. Gyeong Hu Kim, M.S. student, 2019, JHU, supervised.
29. Yang Wang, M.S., 2016. JHU, Now Ph.D. student at KTH Stockholm, Sweden
30. Vincent van Geirt, 2014, Thesis was awarded at INSA, Strasbourg, France
31. Ismail Kuru, M.S., 2012. Thesis was awarded at TUM, Munich, Germany
32. Xingchi He, M.S., 2009. Thesis was awarded at TUM, Munich, Germany
33. Ethan Tang, M.S. student, 2017, JHU, supervised.
34. Baichuan Jiang, M.S. student, 2017, JHU, supervised.
35. Saurabh Singh, M.S. student, 2017, JHU, supervised.
36. Ankur Gupta, M.S. student, 2017, JHU, supervised.
37. Ryan Seling, M.S. student, 2017, JHU, supervised.
38. David Levi, M.S. student, 2016-2017, JHU, supervised.
39. Nhat Tran, M.S. student, 2014-2016, JHU, supervised.
40. Rishabh Khurana, M.S. student, 2013, JHU, supervised.
41. Piyawan Moonjaita, visiting M.S. student, Mahidol University, Thailand, 2011, supervised.
42. Yuki Hirose, visiting M.S. student, Osaka University, Japan, 2011, co-supervised (Professor Russell Taylor, JHU).
43. Dominik Gierlach, visiting M.S. student, TUM, Munich, Germany, 2010, supervised.
44. Daniel Roppenecker, visiting M.S. student, TUM, Munich, Germany, 2010, supervised.
45. Ryan Farmer, M.S. student, JHU, 2009, supervised.
46. Zhenglong Sun, visiting M.S. student, Nanyang Technological University, Singapore, 2008, supervised.
47. Paweena U-Thainual, visiting M.S. student, Queen's University, Canada, 2008-2009, co-supervised (Professor Russell Taylor, JHU).
48. Kozo Mukaiyama, M.S. student, Tokyo University, Japan, 2002-2003, co-supervised (Professor Ichiro Sakuma, University of Tokyo).

#### **Previous B.S. Students**

At the Johns Hopkins University: Jim Wang (2022), Abdullah Armouti (2022), Aabhas Jain (2022), Aryan Sabet Payman (2022), Weiqiang Liu (2019), Arushi Singh (2019), Esteban Escobar Gomez (2012), Marisa Babb (2012), Steve Park (2012), Zachary Bredl (2016), Justin Kim (2017), Matthew Heacock (2018), Jan Hagemeister (2018)

Research Experience for Undergraduates (REU) students: mentored 1-2 students per year since 2008.

#### **Ph.D. Dissertation Committees**

At the Johns Hopkins University: Xingchi He (2015), Berk Gonenc (2017), Erin Sutton (2017), Shahriar Sefati (2020), Amirhossein Farvardin (2020), Ali Ebrahimi (2022), Ji Woong Kim (2023)

At other institutions: Weijian Shang (Worcester Polytechnic Institute, Worcester, MA, 2015), Gang Li (Worcester Polytechnic Institute, Worcester, MA, 2016), Mingchuan Zhou, (TUM, Germany, 2019)

## PROFESSIONAL ORGANIZATIONS AND SERVICE

### Member

- Romanian Association for Machines and Mechanisms Theory 1992- present
- Romanian Society for Robotics (SRR) 1996 - present
- Institute of Electrical and Electronics Engineers (IEEE, SM14) 2008 - present
- America Society of Mechanical Engineers (ASME) 2010 - present

### Editor

#### *Journals*

- Journal of Medical Robotics Research: Editor, 2015 - present
- IEEE Robotics and Automation Letters (*RA-L*): Associate Editor, 2015 – 2018
- Sensors, MDPI, Guest Editor for Special Issue "Force and Pressure Based Sensing Medical Application," 2017, 20 papers.
- Sensors, MDPI, Editorial Board Member, 2018 - present

### Conference and Workshop Program Committees

- International Symposium on Medical Robotics (ISMR), Co-Chair, 2020, 2021, 2022, 2023, 2024
- International Symposium on Medical Robotics (ISMR), 2019, 2021 (two workshops), 2022.
- IEEE BioRob 2010
- IEEE IROS 2022 – Full-day Workshop: Advanced Robotics and Visualization for Ophthalmic Surgery. IROS-ARVOS
- IEEE ICRA 2023 – Full-day Workshop: New Evolutions in Surgical Robotics: Embracing Multimodal Imaging Guidance, Intelligence, and Bio-inspired Mechanisms.

### Reviewer

#### *Grant Proposal Peer Reviews*

- National Science Foundation, USA: 2014
- European Research Council, Frontier Research Grants, 2016
- National Institutes of Health, USA: 2019, 2021, 2022

#### *Journals (partial list)*

- International Journal of Robotics Research: 2011, 2013; 2014; 2015, 2017, 2018
- IEEE Transactions on Robotics: 2011, 2012, 2015; 2019
- IEEE Transactions on Mechatronics: 2015; 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
- Robotica: 2008, 2011; 2015, 2018, 2020, 2021
- International Journal of Computer Assisted Radiology and Surgery: 2009, 2011; 2016, 2017, 2018, 2019, 2020, 2021.
- International Journal of Medical Robotics and Computer Assisted Surgery: 2011, 2012, 2013; 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023.
- Transactions on Biomedical Engineering: 2010, 2012; 2016, 2017, 2019, 2020, 2021, 2022, 2023
- Sensors & Actuators: A. Physical: 2012; 2018, 2022
- Investigative Ophthalmology & Visual Science: 2009, 2010; 2019
- Physics in Medicine and Biology: 2010.

#### *Conferences (partial list)*

- IEEE International Conference on Robotics and Automation: 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2019, 2020, 2021, 2022, 2023

- IEEE International Conference on Intelligent Robots and Systems: 2011; 2014; 2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023
- IEEE EMBS International Conference: 2010, 2011, 2012, 2013; 2014; 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
- IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronics: 2010, 2012, 2014,

#### **Service**

- WSE Machine Shop Advising Committee 2011 - present.
- ERC/LCSR Safety Committee 2005 - present.

#### **CONTACT INFORMATION**

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