

Gaddi Blumrosen – Full CV

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About

Gaddi Blumrosen is a multi-disciplinary scientist. In his scientific career, he is deploying advanced computational tools (signal processing, modeling, and machine learning) to develop new sensing, modeling, and data analysis tools in medicine, neuroscience, and biological processes understanding.

Currently I am a Principal Investigator (PI) and the head of my current lab having more than 14 graduate students, working on state-of-the-art research project in the field of multi-modal (video, voice, and text) processing of video stream for neurological diagnosis of neurological disorders like ADHD, Autism, Parkinson disease, and Dementia. I work in collaboration with leading hospitals in Israel like Sheba (neurology department), Ichilov (neurology and geriatric department), and Beilinson (ophthalmology), and occupational therapy at Haifa University, psychological department at Ariel University, and biomedical department at Bar Ilan University.

In recent years, my focus has been on finding behavioral biomarkers related to motor and cognitive changes in the mental field, specifically in ADHD, Autism, Alexithymia, Dementia, and Parkinson's disease. My aim is to improve the accuracy of diagnoses, close the diagnosis-treatment loop, and assist the patient, their family members, and their environment

Scientific Research interest

Machine learning, signal processing, Activity recognition, Exploit Home based sensing (inertial sensors, video) for advancing medical and neurological diagnostics; Computational Neuroscience; Bio-Inspired Systems' design.

Medical sensing and diagnostics lab

He is the head of medical sensing and diagnostics lab: <https://gaddib.wixsite.com/hit-site/> The lab deploys and develop state of the art machine learning tools focusing on available home resources like video and tablets to extract behavioral features that can assist in medical diagnosis, and in decision support for clinicians, focusing mostly in diagnosis of neurological condition at home environment settings.

Education

Gaddi has BsC, MA, and PhD from Technion, Tel aviv University, and School of Computer Science and Engineering, Hebrew University of Jerusalem (2012).

Period of Study (dates)	Name of University (including city and country if not in Israel)	Subject	Degree or Professional Licence	Date of Award
1994-1998	Technion – Israel Institute of Technology	Electrical Engineering	B.Sc.	1998

2003-2005	Tel-Aviv University	Electrical Engineering	M.Sc.	2005
2008-2012	Hebrew University of Jerusalem	Computer Science and Engineering	Ph.D.	2012

Postdoc and research fellowship

Period of Study (dates)	Name of University (including city and country if not in Israel)	Subject	Degree or Professional Licence
3/2019-9/2021	Bar-Ilan University, Ramat Gan, Israel	Brain inspired neural networks, and objective ADHD assessment	Research fellow
2016-2018	IBM research fellow	Computational medicine	Research fellow
2015-2016	Computational Neuroscience Department, New York University, New York, USA	Facial emotional recognition in animal's model ²	Post-Doc
2014-2015	Harvard University, Cambridge MA, USA; Massachusetts General Hospital, Boston, MA, USA	Center for Engineering in Medicine & Surgery (CEMS)	
2012-2014	Computer Science Department, Tel-Aviv University, and Sheba Tel-Hashomer Medical Centre	Computational neuroscience, Assessing human kinematics with Sonar and video ¹	Post-Doc Fellow

Positions, Scientific Appointments, and Honors

- 2024, 2025 Excellence reward for achievement in teaching and reserach, HIT
- 2024-2025 Special issue editor, Wearable Sensing of Medical Condition at Home Environment
- 2021- Tenured Senior Lecturer, Dept. of Digital Medical Technologies, and school of Computer and data science, Holon Institute of Technology (HIT)
- 2022- Head of Medical Sensing and Analysis laboratory, Holon Institute of Technology (HIT)
- 2020-2021 Lecturer, Statistics and Machine learning, MsC program in environmental studies, Tel Aviv University
- 2019-2021 Associate researcher, Faculty of Engineering and Gonda school of neuroscience, Bar Ilan University
- 2015-2016- cancer research at Harvard medical school

2016-2018 Research associate, Computational Medicine, IBM research, New York, United States

Grants

Working Grants:

1. EU-Horizon, Using generative models to reduce translation biases (1,000,000 EU, together with 4 countries)
2. Israel Ministry of Science, At home ADHD severity assessment with daily life table usage, 500,000 (2025-2028) (PI together with Dr. Alexandra Saad, Haifa University)
3. Israel Ministry of Science, multimodal AI assessment of Alexithymia using analysis 500,000 (2025-2028) (PI with Dr. Hila Gvirts, Ariel University)

Past Grants

1. HIT-Ariel grant for analyzing Autism based on mother-child interaction (2023-2025)
2. HIT-Haifa grant for application for ADHD diagnostics (2022-2024).
3. Israeli cancer foundation, decision support tools for precision medicine in cancer (with BIU, 2022-2023)
4. IBM research post-doctoral fellowship (2016-2018)
5. Eshkol post-doctoral fellowship (2013-2015);
6. Israel Cancer Association (ICA), travel grant (2014) ;
7. Parkinson Diseases, SAIA research grant (2013);
8. Valachi Pikovsky Foundation post-doctoral fellow (2012);
9. Leibniz Fellowship, School of Engineering and Computer Science, The Hebrew University of Jerusalem (2010-11);

Teaching

1. **Decision support system in medicine, MsC, computer science, HIT**
2. **Data analysis and decision support system, MsC, faculty of data science, HIT**
3. **Sensing, monitoring, and medical condition assessment at home environment, BA, faculty of digital medical technologies, HIT**
4. **Machine learning, BA, faculty of digital medical technologies, HIT**
5. **2021, Introduction to Statistics and machine learning , Tel Aviv University**

Selected Publications

Google scholar link: <https://scholar.google.co.il/citations?user=kiDmFw0AAAAJ&hl=en>

[]* - equal contribution

Peer reviewed Journal and proceedings papers

1. G. Blumrozen, G. Malkiel, shlomo hanah, and H. Gvirts, "Architecture, Evaluation Metrics, and Technical Feasibility of LLMs in Mental State Assessment: A Case Study in PTSD," in CBMS proceedings, limassol , Cyprus: IEEE, 3-6, June 2026
2. Anton Gellashvili, Hezi Reshef, and Gaddi Blumrosen, "ADHD diagnostics from home-based video clips", scientific reports, nature (May, 2026)
3. Harel Rom, Ori Peleg, Yovel Rom, Anat Mirelman, Gaddi Blumrosen, and Inbal Maidan, " Home-based assessment of Parkinson's disease severity with facial video recording", BMC Medical Informatics and Decision Making, accepted (November 2024)

4. A. Gelashvili, Y. S. Resheff and G. Blumrosen, "Construction of a Social-Media Based Clinical Database – Roadmap, Challenges, and Feasibility for ADHD Recognition," in *IEEE Access*, November 2024, doi: 10.1109/ACCESS.2024.3483311.
5. Varon, Eli*, Gaddi Blumrosen*, and Orit Shefi. "A predictive model for personalization of nanotechnology-based phototherapy in cancer treatment." *Frontiers in Oncology* 12 (2023): 1037419.
6. Varon, E., Blumrosen, G., Sinvani, M., Haimov, E., Polani, S., Natan, M., ... & Shefi, O. (2022). An engineered nanocomplex with Photodynamic and Photothermal synergistic properties for cancer treatment. *International Journal of Molecular Sciences*, (2022), 23(4), 2286.
7. Lazebnik, Teddy*, and Gaddi Blumrosen*. "Advanced multi-mutation with intervention policies pandemic model." *IEEE Access* 10 (2022): 22769-22781.
8. An engineered nanocomplex with Photodynamic and Photothermal synergistic properties for cancer treatment
Eli Varon, Gaddi Blumrosen, Moshe Sinvani, Elina Haimov, Shlomi Polani, Michal Natan, Irit Shoval, Ayelet Atkins, David Zitoun, Orit Shefi, nano-technology journal (2021)
9. Blumrosen, G, Yonatan Wexler, Doron Shkolnik, and Alex Golberg. The 20th annual IEEE International Conference on Bioinformatics and Bioengineering. Proceedings of IEEE BIBE, October 2020
10. Blumrosen, G., Sakuma, K., Rice, J. J., & Knickerbocker, J. Back to Finger-Writing Fingertip writing technology based on pressure sensing. *IEEE Access*, 1–1. <https://doi.org/10.1109/ACCESS.2020.2973378> (2020)
11. Blumrosen, G. (2019b). Enhancing Healthcare Quality with Reinforcement Learning Modeling. Proceedings of IEEE Sensors, 2019-Octob. <https://doi.org/10.1109/SENSOR43011.2019.8956903>, . (2019).
12. Blumrosen, G. Enhancing Tracking Accuracy with Exploitation of Mobile Unit Orientation and Antenna Pattern. 1–6. <https://doi.org/10.1109/comcas44984.2019.8958436> (2019)
13. Katsuyuki, S., Blumrosen, G., Rice, J. J., Rogers, J., & Knickerbocker, J. (n.d.). Turning the Finger into a Writing Tool. *IEEE EMBS* 2019.
14. Katsuyuki Sakuma, Avner Abrami, Gaddi Blumrosen, Stanislav Lukashov, Rajeev Narayanan, Joseph W. Ligman, Vittorio Caggiano & Stephen J. Heisig "Wearable Nail Deformation Sensing for Behavioral and Biomechanical Monitoring and Human-Computer Interaction", scientific reports, December 2018
15. Yaron Lavi, Dror Birnbaum, Or Shabtai, Gaddi Blumrosen , "Bio-Metric System based on Kinect Skeleton, Facial, and Vocal Features", *Advances in Intelligent Systems and Computing*, Springer, 2018.
16. Gaddi Blumrosen, David Hawellek, and Bijan Pesaran, "[Towards Automated Recognition of Facial Expressions in Animal Models](#) Blumrosen", Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition, pp. 2810--2819, 2017 .
17. Blumrosen, G*, Abazari, A*, Golberg, A., Yarmush, M. L. & Toner, M. Single-step electrical field strength screening to determine electroporation induced transmembrane transport parameters. *Biochim. Biophys. Acta - Biomembr.* 1858, 2041–2049 (2016).
18. Blumrosen, G, Miron, Y, Intrator, N, and Plotnik, M, "A Real Time Kinect Signature Based Patient Kinematics Analysis At Home", *Sensors* 2016, 16(11), 1965; doi: 10.3390/s16111965, 11/2016.
19. Amichai, E*, Blumrosen, G*. & Yovel, Y. Calling louder and longer: how bats use biosonar under severe acoustic interference from other bats. *Proc. R. Soc. B* 282, 20152064 (2015).
20. Khan, Saiqa I*; Blumrosen, Gaddi*; Vecchio, Daniela*; Golberg, Alexander; McCormack, Michael C.; Yarmush, Martin L.; Hamblin, Michael R.; Austen, W. G. . Eradication of multidrug-resistant pseudomonas biofilm with pulsed electric fields. *Biotechnol. Bioeng.* n/a–n/a. doi:10.1002/bit.25818 (2015)
21. Blumrosen, G, Miron, Y, Plotnik, M, and, Intrator, N, "Towards a real time kinect signature based human activity assessment at home." *2015 IEEE 12th International Conference on Wearable and Implantable Body Sensor Networks (BSN)*. IEEE, 2015.
22. Blumrosen, G*, Abazari, A*, Golberg, A., Tonner, M. & Yarmush, M. L. Efficient Procedure and Methods to Determine Critical Electroporation Parameters. in *2014 IEEE 27th International Symposium on Computer-Based Medical Systems* 314–318 (IEEE, 2014). doi:10.1109/CBMS.2014.18, 2014
23. Blumrosen G, Fishman B, Yovel Y: Non-contact Wideband Sonar for Human Activity Detection and Classification. *IEEE, Sensors*, 2014.
24. Blumrosen G, Luttwak A: Human body parts tracking and kinematic features assessment based on RSSI and inertial sensor measurements. *Sensors* 2013, 13(9):11289-11313, 2013.
25. Blumrosen, G*, Hod, B*, Anker, T., Dolev, D. & Rubinsky, B. Enhanced calibration technique for RSSI-based ranging in body area networks. *Ad Hoc Networks* 11, 555–569 (2013).
26. Blumrosen, G*, Hod, B*, Anker, T., Dolev, D. & Rubinsky, B. Enhancing RSSI-based tracking accuracy in wireless sensor networks. *ACM Trans. Sens. Networks* 9, 1–28 (2013).
27. Blumrosen G, Uziel M, Rubinsky B, Porrat D: Noncontact Tremor Characterization Using Low-Power Wideband Radar Technology. *Biomedical Engineering, IEEE Transactions on* March, 2012, 59(3):674-686.

28. Blumrosen G, Avidris N, Kupfer R, Rubinsky B: C-SMART: Efficient Seamless Cellular Phone Based Patient Monitoring System. *Proceedings of IEEE IREHSS 2011 : Third IEEE Workshop on Interdisciplinary Research on E-health Services and Systems* 2011.
29. Blumrosen, Gaddi;Porrat, Dana;Rubinsky, Boris; Dolev, D. Exploitation of electromagnetic radiation properties for medical diagnostic. in *2011 IEEE International Conference on Microwaves, Communications, Antennas and Electronic Systems (COMCAS 2011)* 1–7 (IEEE, 2011).
doi:10.1109/COMCAS.2011.6105853, 2011
30. Blumrosen G, Uziel M, Rubinsky B, Porrat D: Non-Contact UWB Radar Technology to Assess Tremor. *The 12th Mediterranean Conference on Medical and Biological Engineering and Computing Proceedings* 2010.
31. Gonzalez, C. a., Blumrosen, G. & Rubinsky, B. Remote Monitoring of Internal Bleeding Based on Magnetic Induction and Cellular Phone Technology : A Potential Application in Poor Regions in México. *Comput. y Sist.* 14, 187–195 (2010).
32. Blumrosen, G., Hod, B., Anker, T., Dolev, D. & Rubinsky, B. Continuous Close-Proximity RSSI-Based Tracking in Wireless Sensor Networks. in *2010 International Conference on Body Sensor Networks* 234–239 (IEEE, 2010).
33. Blumrosen, G., Gonzalez, C. a. & Rubinsky, B. *New wearable body sensor for continuous diagnosis of internal tissue bleeding.* Proc. - 2009 6th Int. Work. Wearable Implant. Body Sens. Networks, BSN 2009 **120–124.**(2009)
34. Blumrosen, G. & Fridman, V. *Simple ML optimal transmission for OSTBC combined with beamforming in Rayleigh and Rician channels.* *23rd IEEE Conv. Electr. Electron. Eng. Isr.* 88–91 (2004).
doi:10.1109/EEEL.2004.1361095 2004
35. Blumrosen, G. & Freedman, A. *Sensitivity Study and a Practical Algorithm for ML OSTBC and Beamforming Combination.* in (IST), 2004.

Patents (published or provisional)

1. Blumrosen, G. et al. "Daily life tools for assessment of neurological disease severity", June 2026
2. Blumrosen, G. et al. systems and methods for evaluating medical conditions and/or diseases from video and multimedia resources, **WO 2026/094052**, May 7, 2026
3. Blumrosen, G., Kolpakov, A., and Tyomkin, B.. "System apparatus and method of classifying bio-mechanic activity." U.S. Patent Application 17/321,532, filed September 29, 2022. <https://patents.google.com/patent/US20220309366A1/en>
4. Blumrosen, G., "posture device detection and system", WO2021255740A1, 2021-12-23
[WO2021255740A1.pdf \(storage.googleapis.com\)](https://patents.google.com/patent/WO2021255740A1.pdf)
5. Sakuma, Katsuyuki, Stephen J. Heisig, John J. Rice, John Knickerbocker, and Gaddi Blumrosen. "Writing recognition using wearable pressure sensing device." U.S. Patent 10,878,231, issued December 29, 2020.
<https://patents.google.com/patent/US10878231/en>
6. Sakuma, K., Heisig, S.J., Rice, J.J., Knickerbocker, J. and Blumrosen, G., International Business Machines Corp, 2020. *Writing recognition using wearable pressure sensing device.* U.S. Patent 10,878,231.
<https://patents.google.com/patent/US10878231/en>
7. Blumrosen, G., Fishman, B. and Yovel, Y., 2014. *Method and system for activity detection and classification.* U.S. Patent Application 14/210,972. <https://patents.google.com/patent/US20140266860A1/en>

Invited talks:

1. Gaddi Blumrosen, “**New technology to use Artificial intelligence (AI) for continuous mental assessment at natural home environment settings**”, Multimodal and complex Data Analysis Center (McDAC), Waseda Research Institute for Science and Engineering (WISE), Waseda University, Tokyo, Japan, Monday, July 8th, 2024
2. Gaddi Blumrosen, “Continuous Neurological condition assessment at home environment settings with daily life accessories”, ai2 conference, Holon, 2023
https://www.youtube.com/watch?v=EfXA0L_Wj7U

Popular Science publications and public lectures

1. The future of Wimax, <http://thefutureofthings.com/articles/6361/the-future-of-wimax.html>
2. “Relationship between art and technology”, Bezalel, Hebrew University of Jerusalem
3. “What we can learn from bats”, <https://www.limmudtlv.org/bats-who-are-they-and-what-can-we-learn-from-them/>

Academic service (reviewer)

Review link: <https://www.webofscience.com/wos/author/record/J-6778-2019>

- **Wireless sensors and communication journals:** IEEE Transaction on Wireless Communication, Springer Mobile Networks and Applications, IEEE transactions on mobile computing, the Journal of Selected Topics in Signal Processing, Indian Journal of Computer Science and Engineering, IEEE Transactions on Microwave Theory and Techniques, Mobile network and applications
- **Bio-medical and sensing journals:** IEEE Transaction on Biomedical Engineering, IEEE sensors, sensors (<http://www.mdpi.com/sensors>), Springer Computers in Biology and Medicine, Elsevier Biomedical Signal Processing & Control, IEEE Journal of Biomedical and Health Informatics, Elsevier Computer Methods and Programs, IEEE Transactions on Neural Systems & Rehabilitation Engineering, healthcare (mdpi), symmetry (mdpi), IEEE access
- **Bio-medical and sensing conferences:** IEEE UAV2010, IEEE eusipco2011.

Editing and chair sessions

1. **CBMS conference, “LLM in service of medical diagnostics, Limassol, Cyprus, June 3-6, 2026**
2. **Special issue editor, “Wearable Sensing of Medical Condition at Home Environment”, sensors, mdpi, 2024-2025,**
https://www.mdpi.com/journal/sensors/special_issues/O35PVS4XVU
3. Organizer and Head Session, “Monitoring and Diagnostics of neurological disease and disorders at home environment settings”, ISFN annual meeting, Eilat, January 2025
4. <https://www.isfn2025.com/copy-of-about-isfn>
5. Organizer, Medicine in the AI era, conference, HIT, <https://academic.hit.ac.il/sites/en/AI2-2023/>