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PERSONAL STATEMENT

For more than thirty years, my work has followed two parallel paths in industry and academia, with each informing the other. In industry, I have conducted applied research, designed intelligent systems, and built and led R&D teams across applications including finance, public safety, and automotive systems. Practical challenges encountered in this work have repeatedly shaped my academic research questions, while academic research has provided methods that I have brought back into applied settings.

My academic training includes a B.Sc. from the Technion, an M.Sc. in Computer Science from the Weizmann Institute, and a Ph.D. in Computer Science from Tel Aviv University. My doctoral research, conducted within the research group led by Prof. Nathan Intrator (Tel-Aviv University) and Nobel laureate Prof. Leon N. Cooper (Brown University), combined machine-learning and signal-processing methods for detecting underground structures and tunnels using low-energy acoustic pulses. I am currently a Senior Lecturer at the Holon Institute of Technology, where I conduct research within my Pragmatic AI program.

In industry, my roles at Amdocs, Citigroup, Motorola Solutions, and Questar included applied research, system design, and leadership of AI and software R&D under demanding computational and operational constraints. As an industry partner, I also led research teams preparing and executing competitively funded R&D programs, including a BIRD Israel-US binational grant and an Israel Innovation Authority Magnetron academia-industry grant, with responsibility for the technical work and project milestones.

Energy- and cost-efficient computation has been a recurring theme across both my industry and academic work. At Amdocs, for example, I developed CPU-load models for cost-efficient system sizing, contributing to approximately \$10 million in savings. In academia, this theme has included selective inference in CalexNet and energy-efficient remote-sensing measurements. My recent *Joule Point* project extends this work to GPU inference by identifying energy-optimal operating points. It has already produced a measurement framework, analysis pipeline, and unique dataset, which the proposed grant will extend into predictive models and a decision-support toolkit for energy-efficient AI in data centers.

EDUCATION

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|-----------|---|
| 2012–2013 | Post-doctoral Fellow, Computer Vision, Weizmann Institute of Science. |
| 2007–2012 | Ph.D., Computer Science (Machine Learning and Signal Processing), Tel-Aviv University, School of Computer Science. |
| 2005–2006 | M.Sc., Management (Information System Management), Polytechnic Institute of NYU, Israel Extension, Dept. of Technology Management and Innovation. |

2001–2004 M.Sc., Computer Science (Computer Vision), Weizmann Institute of Science, Faculty of Mathematics and Computer Science.

1991–1995 B.Sc., Computer Science (4-year track), Technion, Israel Institute of Technology, The Taub Faculty of Computer Science.

Doctoral research supported by the U.S. Army Research Office under "Detection of Underground Installments in Hostile Environment" (PI: Prof. Leon N. Cooper, Nobel Laureate in Physics, Brown University).

ACADEMIC EXPERIENCE

2024–present	Holon Institute of Technology (HIT), Computer Science.	Senior Lecturer
2013–present	Afeka College of Engineering, Intelligent Systems.	M.Sc. Adviser
2022–present	Bar-Ilan University, Engineering.	Adjunct Lecturer
2013, 2015	Tel-Aviv University, Computer Science.	Adjunct Lecturer
2011–2012	Academic College of Tel Aviv-Yaffo, Computer Science.	Adjunct Lecturer

RECENT PROFESSIONAL EXPERIENCE

Year	Role	Company	Application
2020–2024	Head, Data Science	Questar Automotive	<i>AI for predictive maintenance</i>
2019–2020	VP, Artificial Intelligence	Harmon.IE	<i>AI for enterprise document management</i>
2015–2019	Head, AI Research; DMTS	Motorola Solutions Israel Innovation Center	<i>AI for public safety</i>
2013–2015	AVP, Data Science	Citigroup TLV Innovation Lab	<i>ML for trading-flow analytics</i>
2010–2011	Data Science Consultant	Amdocs	<i>Capacity modeling for distributed systems</i>

PUBLICATIONS

Peer-reviewed journal and conference papers

1. Aperstein, Y.; Tzahar, A.; Gottlib, A.; Verber, T.; Shagan Damti, R.; **Apartsin, A.** Selective multipathology chest X-ray classification via rejection mechanisms. Scientific Reports, 2026. doi.org/10.1038/s41598-026-66294-7
2. Aperstein, Y.; Moran, E.; **Apartsin, A.** IRC-Bench: recognizing entities from contextual cues. Machine Learning and Knowledge Extraction, 8(7), 2026. doi.org/10.3390/make8070186
3. Atia, T.; Aperstein, Y.; **Apartsin, A.** SeaAlert: robust severity classification and LLM-based information extraction for maritime distress communications. IEEE Access, 14, 2026. doi.org/10.1109/access.2026.3709004

4. Adamenko, I.; Ben-Aharon, O.; Aperstein, Y.; **Apartsin, A.** Mapping license-plate recoverability under extreme viewing angles. *AI*, 7(7), 2026. doi.org/10.3390/ai7070237
5. Aperstein, Y.; **Apartsin, A.** CalexNet: soft cascade-aligned training and calibration for lightweight early-exit branches. *Electronics*, 15, 2026. doi.org/10.3390/electronics15102149
6. Werthaim, M.; Kimhi, M.; **Apartsin, A.**; Aperstein, Y. A benchmark for evaluating diagnostic questioning efficiency of LLMs in patient conversation. *Scientific Reports*, 16, 2026. doi.org/10.1038/s41598-026-37022-y
7. Aperstein, Y.; Gottlib, A.; Benita, G.; **Apartsin, A.** Explainable semantic text relations. *Information*, 16(12), 2025. doi.org/10.3390/info16121090
8. Aperstein, Y.; Cohen, Y.; **Apartsin, A.** Generative AI-based platform for deliberate teaching practice. *Education Sciences*, 15(4), 2025. doi.org/10.3390/educsci15040405
9. **Apartsin, A.**; Cooper, L.N.; Intrator, N. Energy-efficient time-of-flight estimation in the presence of outliers. *IEEE JSTARS*, 7(4), 2014. doi.org/10.1109/jstars.2013.2295324
10. **Apartsin, A.**; Cooper, L.N.; Intrator, N. Time-of-flight estimation in the presence of outliers, Part II. *IEEE Trans. Geoscience and Remote Sensing*, 52(7), 2013. doi.org/10.1109/tgrs.2013.2276919
11. **Apartsin, A.**; Cooper, L.N.; Intrator, N. Time-of-flight estimation in the presence of outliers, Part I. *IEEE Trans. Geoscience and Remote Sensing*, 52(6), 2013. doi.org/10.1109/tgrs.2013.2272737
12. **Apartsin, A.**; Cooper, L.N.; Intrator, N. Semi-coherent time-of-arrival estimation using regression. *J. Acoustical Society of America*, 132(2), 2012. doi.org/10.1121/1.4730885
13. **Apartsin, A.**; Intrator, N. A data-fusion and multiple-ping method for low-power acoustic and seismic sensing. *J. Acoustical Society of America*, 124(4), 2008. doi.org/10.1121/1.4783265
14. **Apartsin, A.**; Ferapontova, E.; Gurvich, V. A circular graph: counterexample to the Duchet kernel conjecture. *Discrete Mathematics*, 178, 1998. [doi.org/10.1016/S0012-365X\(97\)81830-4](https://doi.org/10.1016/S0012-365X(97)81830-4)
15. **Apartsin, A.**; Stein, H.; Reiter, G.; Williams, K.; Moscovich, N. Early detection of engine anomalies for AI-based Integrated Vehicle Health Management. *SAE WCX World Congress*, 2022. doi.org/10.4271/2022-01-0225
16. **Apartsin, A.**; Reiter, G.; Williams, K. AI-based signal-integrity monitoring for integrated vehicle health management. *ELIV*, 2021. doi.org/10.51202/9783181023846-143
17. Cohen, O.; **Apartsin, A.**; Alon, J.; Katz, E. Robust motion compensation for forensic analysis of egocentric video. *IEEE ICSEE*, 2018. doi.org/10.1109/icsee.2018.8646211
18. Efrat, N.; Glasner, D.; **Apartsin, A.**; Nadler, B.; Levin, A. Accurate blur models vs. image priors in single-image super-resolution. *IEEE ICCV*, 2013. doi.org/10.1109/iccv.2013.352
19. **Apartsin, A.**; Cooper, L.N.; Intrator, N. Biosonar-inspired source localization in low SNR. *BIOSIGNALS / BIOSTEC*, 2011. doi.org/10.5220/0003126803990404
20. **Apartsin, A.**; Cooper, L.N.; Intrator, N. SNR-dependent filtering for time-of-arrival estimation in high noise. *IEEE MLSP*, 2010. doi.org/10.1109/mlsp.2010.5588848
21. Galun, M.; **Apartsin, A.**; Basri, R. Multiscale segmentation by combining motion and intensity cues. *IEEE CVPR*, 2005. doi.org/10.1109/cvpr.2005.244

Preprints and submitted

22. **Apartsin, A.**; Aperstein, Y. The Joule Point: an energy-optimal operating point for AI inference. Preprint, September 2026. DOI: [10.13140/RG.2.2.20385.36964](https://doi.org/10.13140/RG.2.2.20385.36964).
23. **Apartsin, A.**; Aperstein, Y. Three generations of healthcare IT: from the digital record to the computable care process. 2026. [arXiv:2608.08806](https://arxiv.org/abs/2608.08806)
24. **Apartsin, A.**; Aperstein, Y. Clinical communication processing with models trained on LLM-generated synthetic data. 2026. [arXiv:2608.05993](https://arxiv.org/abs/2608.05993).
25. **Apartsin, A.**; Aperstein, Y. Modeling normal is all you need: anomaly detection in multimodal cyber-physical systems. 2026. [arXiv:2607.06094](https://arxiv.org/abs/2607.06094).
26. **Apartsin, A.**; Aperstein, Y. Framing, judging, steering: an assessable competency model for reasoning with generative AI. 2026. [arXiv:2606.05983](https://arxiv.org/abs/2606.05983)
27. **Apartsin, A.**; Aperstein, Y. CoEval: ranking language models for custom tasks without labeled data. 2026. [arXiv:2606.03650](https://arxiv.org/abs/2606.03650)
28. Aperstein, Y.; **Apartsin, A.** Domain-gated latent diffusion: inverse design of HMX-class energetic materials. 2026. [arXiv:2605.26540](https://arxiv.org/abs/2605.26540)
29. **Apartsin, A.**; Sason, O.; Aperstein, Y. Toward a benchmark for controllable simulation of imperfect students with LLMs. 2026. [arXiv:2605.25601](https://arxiv.org/abs/2605.25601)
30. **Apartsin, A.**; Meshulam, Y.; Aperstein, Y. Communication-free collaborative filtering for decentralized multi-robot task allocation. 2026. [arXiv:2605.25584](https://arxiv.org/abs/2605.25584)
31. Aperstein, Y.; **Apartsin, A.** A controlled synthetic benchmark for educational aspect-based sentiment analysis. 2026. [arXiv:2605.25502](https://arxiv.org/abs/2605.25502)
32. Cohen, M.; Shani, S.; Menahem, E.; Aperstein, Y.; **Apartsin, A.** Classifying resume seniority with large language models. [arXiv:2509.09229](https://arxiv.org/abs/2509.09229), 2025.
33. Aperstein, Y.; Gottlib, A.; Benita, G.; **Apartsin, A.** Towards knowledge-aware document systems. [arXiv:2509.08304](https://arxiv.org/abs/2509.08304), 2025.
34. Dahary, S.; Edana, A.; **Apartsin, A.**; Aperstein, Y. Emotion estimation in pop-song lyrics. [arXiv:2509.05617](https://arxiv.org/abs/2509.05617), 2025.
35. Cohen, Y.; Ohayon, D.; Somkin, R.; Aperstein, Y.; **Apartsin, A.** Code review without borders: synthetic vs. real data. [arXiv:2509.04810](https://arxiv.org/abs/2509.04810), 2025.
36. Bolshinsky, I.; Kupiec, S.; Sasson, S.; Aperstein, Y.; **Apartsin, A.** Do large language models need intent? [arXiv:2509.05006](https://arxiv.org/abs/2509.05006), 2025.
37. Cohen, D.; Efrosman, I.; Aperstein, Y.; **Apartsin, A.** Panoramic incident summaries from body-worn footage. [arXiv:2509.04370](https://arxiv.org/abs/2509.04370), 2025.
38. Goren, Y.; Cohen, Y.; **Apartsin, A.**; Aperstein, Y. Interjection classification for human-computer interaction. [arXiv:2509.03181](https://arxiv.org/abs/2509.03181), 2025.

PATENTS AND PATENT APPLICATIONS

1. Kovalets, S.; Barabanov, S.; Shalev, Y.; **Apartsin, A.** System and method for model-configuration selection. [US 11,868,899 B2](https://patents.google.com/patent/US11868899B2), 2024.
2. Kahlon, H.; **Apartsin, A.**; Lev, D.; Mordel, T. Response to an audio query determined to have a public-safety impact. [US 10,825,450 B2](https://patents.google.com/patent/US10825450B2), 2020.
3. Basri, R.; Brestel, C.; Galun, M.; **Apartsin, A.** Matching portions of input images. [US 8,175,412 B2](https://patents.google.com/patent/US8175412B2), 2012.

4. Stein, Y.; Vardi, Y.; **Apartsin, A.** Unification and optimization of machine-learning inference pipelines. [US 2024/0013905 A1](#), 2024.
5. **Apartsin, A.**; Henrichs, K.; Kossaczky, I.; Kovalets, S.; Mavliutov, Y.; Korchahin, I. DTC rulebook generation system and method. [US 2024/0338980 A1](#), 2024.
6. Shalev, Y.; Henrichs, K.; Kossaczky, I.; **Apartsin, A.** Determining a score for a driver within a fleet. [IL 308506A](#), 2025.
7. Henrichs, K.; Blanc, S.M.; Shalev, Y.; **Apartsin, A.** Model training for a new signal from metadata representations of known signals. [US 2023/0351160 A1](#), 2023.
8. Bakalo, R.; **Apartsin, A.**; Stein, Y.; Vardi, Y. Feature-selection recommendation. [US 2022/0383141 A1](#), 2022.
9. **Apartsin, A.**; Stein, Y.; Vardi, Y. Physical model-based machine learning. [US 2022/0382939 A1](#), 2022.
10. **Apartsin, A.**; Tchemerisov, V.; Cooperman, V. Search user interface. [US 2009/0070321 A1](#), 2009.