Sharva Gogawale

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EDUCATION

Tel Aviv University — **Tel Aviv, Israel**

Master of Science in Electrical and Computer Engineering (GPA:4.0/4.0) — *December 2025*

Relevant Coursework: Deep Learning, Computer Vision, Deep Learning for Medical Imaging, Optimization, Optimal Control

Bachelor of Science in Electrical and Electronics Engineering (GPA:3.6/4.0) — *July 2022*

Relevant Coursework: Data Structures & Algorithms, Computer Architecture & Operating Systems, Random Signals & Noise

PUBLICATIONS

[J: Journal, C: Conference, P: Poster]

[C4] Carmel Kronfeld, **Sharva Gogawale**, Ofer Weintraub, Tetsuro Kobayashi, Irad Ben Gal. *A Multi-Stage Agentic Framework for Effective Counter-Narrative Generation and Refinement*. Submitted to ACL ARR, October 2025.

[C3] Sharva Gogawale et al. *Classifying Medieval Manuscripts by Pen and Support*. Sixth Conference on Computational Humanities Research (CHR 2025). [Paper]

[C2] Sharva Gogawale, Madhura Deshpande, Parteek Kumar, Irad Ben-Gal. *Real-Time Attentiveness Detection and Adaptive Feedback in Online Learning Using Facial Expression Recognition and LLMs*. 17th International Conference on Knowledge Discovery and Information Retrieval (KDIR 2025). [Paper]

[J2] Sharva Gogawale, Berat Kurar-Barakat, Daria Vasyutinsky Shapira, Nachum Dershowitz. *LayNet: End-to-End Layout Classification for Enhancing Image Preparation in Historical Documents*. magazén: International Journal for Digital and Public Humanities, 2024. [Paper]

[J1] Sharva Gogawale, Madhura Deshpande, Parteek Kumar, Irad Ben-Gal. *Learner Attentiveness and Engagement Analysis in Online Education Using Computer Vision*. Submitted to Multimedia Tools and Applications (2024). [Paper]

[C1] Berat Kurar-Barakat, Daria Vasyutinsky Shapira, **Sharva Gogawale**, Nachum Dershowitz. *Computational Paleography of Medieval Hebrew Scripts*. Computational Humanities Research (CHR 2024), Aarhus, Denmark. [Paper]

[P3] Daria Vasyutinsky Shapira, Berat Kurar-Barakat, **Sharva Gogawale**, Mohammad Suliman, Nachum Dershowitz. *MiDRASH – A Project for Computational Analysis of Medieval Hebrew Manuscripts*. Eurographics Workshop on Graphics and Cultural Heritage (GCH 2024). [Poster]

[P2] Daria Vasyutinsky Shapira, Berat Kurar-Barakat, Mohammad Suliman, **Sharva Gogawale**, Nachum Dershowitz. *Clustering Ashkenazi Manuscripts*. Digital Humanities Conference 2024, Washington, D.C. [Paper]

[P1] Sharva Gogawale, Berat Kurar-Barakat, Mohammad Suliman, Daria Vasyutinsky Shapira, Nachum Dershowitz. *Transcending Traditional Paleography Through Computational Analysis*. IDSAI 2024 – 3rd Annual Conference.

EXPERIENCE

Tel Aviv University (in collaboration with Waseda University & XPOZ.AI) — **Remote**

Graduate Researcher | *Advised by Prof. Irad Ben-Gal and Prof. Tetsuro Kobayashi* — *April 2025 - Present*

- Designing a hybrid human-AI agent framework for automated detection, classification, and targeted mitigation of coordinated misinformation campaigns in online social networks.
- Implementing and refining LLM-based counter-narrative generation agents, optimizing them via empirically validated rhetorical strategies, and evaluating their effectiveness through adversarial multi-agent simulations.

Postgraduate Institute of Medical Education and Research (PGIMER) & Thapar Institute — **Remote**

Healthcare AI Research Lead & Mentor — *January 2025 - Present*

- Leading a team developing AI-powered, non-invasive coronary stenosis assessment tools from X-ray angiography as a cost-effective alternative to invasive procedures.
- Engineering a SAM-based segmentation pipeline with text-conditioned prompts for precise catheter and artery delineation.
- Prototyping a diffusion model for sparse multi-view 3D reconstruction of coronary arteries for QFR computation from limited imaging data.

European Research Council (ERC) Synergy MiDRASH — **Tel Aviv, Israel**

AI Researcher | *Advised by Prof. Nachum Dershowitz* — *September 2023 - Present*

- Contributing to a project funded by the ERC for €10 million, in collaboration with leading institutions, including TAU, EPHE-PSL, Bar-Ilan University, and the National Library of Israel, to digitize and analyze Medieval Hebrew manuscripts.
- Developing advanced algorithms for handwriting recognition, page segmentation, and intertextual analysis using advanced computational tools to convert manuscript images into searchable, analyzable digital text.

TAD: Center for Data Science & Artificial Intelligence **Tel Aviv, Israel**
Graduate Research Assistant *October 2022 - March 2023*

- Devised a proof-of-concept algorithm for judicial authorship identification by preprocessing U.S. Supreme Court opinions and leveraging a BERT-based model, reaching 76% accuracy and securing the prestigious TAD 2023 Research Grant($30K).

TAU-Google AI for Social Good **Tel Aviv, Israel**
Graduate Researcher | *Advised by Prof. Nachum Dershowitz* *August 2021 - October 2022*

- Worked on enhancing segmentation methods for color & infrared images of Dead Sea Scroll fragments, improving baseline results for challenging fragment cases; integrated outputs into the IAA's public archive.
- Built a semi-automatic segmentation tool and contributed to fragment matching and registration pipelines, enabling precise cross-referencing of historical images and improving accessibility for scholarly research and digital preservation.

LAMBDA: **Laboratory for AI, ML, Business & Data Analytics, TAU** **Tel Aviv, Israel**
Research Assistant *August 2021 - October 2022*

- Engineered a computer-vision-based system for real-time emotion detection and analysis of user engagement in E-learning.
- Developed advanced state-of-the-art hybrid models for quantifying learners' affective states and a novel mathematical formulation for quantifying learners' attentiveness.
- Deployed a neural network-based web API for real-time engagement analysis, enabling seamless integration of emotion detection into e-learning platforms.

Onshape **Pune, India**
Software Engineering Intern *August 2020 - October 2020*

- Designed, implemented, and deployed scalable backend features for CAD software; delivered a new client-specific module and built ETL workflows with Apache Airflow to support data processing.

ACADEMIC PROJECTS

Graduate Thesis, Tel-Aviv University
Intelligent Engagement Monitoring in Virtual Classrooms using Computer Vision and LLMs
Supervisors: Prof. Irad Ben-Gal & Prof. Parteek Bhatia

- Automated real-time assessment of E-learners' attentiveness and cognitive states by experimenting with deep learning networks such as VGGs, ResNets, and EfficientNets; optimized with focal loss for imbalanced data, achieving 80.32% engagement accuracy and surpassing state-of-the-art baselines.
- Worked on a multimodal framework integrating EEG signals, head and eye movement data for cognitive state detection, coupled with Grad-CAM and SHAP to enhance model interpretability.
- Leveraged advanced LLMs to contextualize lecture content and analytics and extended the system for effective recommendations to all target audiences.

Undergraduate Thesis, Tel Aviv University
Advanced Segmentation and Word Spotting for Historical Document Recognition
Supervisors: Prof Lior Wolf & Prof. Nachum Dershowitz

- Developed a novel top-line computation algorithm and multi-stage data-processing pipeline to repolygonize Hebrew script text regions and generate accurate, word-level bounding boxes, overcoming limitations of baseline-dependent OCR tools.
- Prepared a dataset for training a fully convolutional neural network for word segmentation and word spotting, achieving an F1 score of 94.7% at a strict IoU threshold of 0.9, significantly boosting model performance.

TEACHING/MENTORSHIP EXPERIENCE

Head Teaching Assistant, 'Summer Course on Explainable-AI': Collaborative course between LAMBDA and Women in AI (W-AI), Israel, with around 300 participants, focused on advancing XAI knowledge in underrepresented STEM communities.

ACHIEVEMENTS & HONORS

- **First Place**: Spring 2022 International Startup Hackathon, organized by Coller School of Management & Rutgers University, New Jersey – Initiated an EdTech Startup.
- **Semifinalist:** Annual Startup Competition 2022, TAU - Recognized as Top 10 Tech Track Startups in Israel out of 116 participating ventures.
- **Full M.Sc. Merit Scholarship**: Awarded by the School of Electrical Engineering at Tel Aviv University.
- **Full B.Sc. Scholarship** - Awarded by Tel Aviv University for all four years of undergraduate studies.

SKILLS

Programming Languages: Python, MATLAB, C, R, C++, Java, JavaScript, HTML, CSS
Machine Learning: PyTorch, Keras, TensorFlow, CUDA, Explainable AI Frameworks, NumPy, Scikit-Learn, Pandas, OpenCV
Development/Tools: React JS, Flask, Apache Airflow, Git, Docker, AWS, Anaconda, Linux, MacOS, Windows