

# Aviv Shamsian

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## Summary

Research Scientist with a PhD and first-author publications at leading ML conferences. Expertise in multi-task learning, learning in weight-space methods, and generative AI for speech. Skilled at translating research breakthroughs into large-scale production systems.

## Education

- 2022 – 2025: **PhD in Machine Learning**, Faculty of Engineering, Bar Ilan University.  
Thesis: Learning with Multiple Tasks, Advisors: Prof. Gal Chechik, Prof. Ethan Fetaya.
- 2019 – 2021: M.Sc - Electrical Engineering, supervised by Prof. Gal Chechik, Bar Ilan University.
- 2013 – 2017: Graduated B.Sc. - Medical Engineering, Afeka. GPA: 92, Dean's honor.

## Experience

### **2023-Present: Data Science Tech Lead – aiOla**

- Responsible for the technical design and architecture of data science projects, while also driving research through publications in top-tier speech conferences and innovation through patents to strengthen aiOla's IP.
- Designed and implemented a proprietary ASR model with zero-shot contextual biasing to jargon and domain-specific terms, inspired by an [ICASSP paper](#). This model powers aiOla's flagship product, delivering industry-grade performance with 93% multilingual transcription recall for jargon and domain-specific language. Deployed at scale, it achieves a 30% reduction in WER for industrial use cases and is used by hundreds of thousands of users worldwide.
- Developed a proprietary keyword-spotting model with open-vocabulary zero-shot capabilities inspired by the [AdaKWS ICASSP paper](#). Integrated into aiOla's flagship product, achieving >95% F1 on multilingual zero-shot recognition of domain-specific terminology.

### **2021-2023: Applied Scientist – Lab126 Amazon**

- Designing, implementing, and deploying a human motion understanding model.
- Led the development of a fitness model for tracking and analyzing user exercises, providing personalized feedback. Drove the project from research and architecture exploration through experimentation, implementation, and deployment on mobile edge devices.

### **2019-2021: Chief Technical Advisor – DeepWrex**

- In charge of leading a research team on cutting-edge deep learning research in the image restoration domain.

### **2019-2020: Data Scientist – DragonTail Systems**

- Developing novel Machine learning and Deep learning approaches for recommendation systems and computer vision applications.
- Led the end-to-end project of segmenting different chicken pieces for KFC, resulting in lower food costs and improved customer service.

### **2016-2019: Machine Learning Researcher – spirCare Ltd**

spirCare is a startup that develops a device for measuring the functional residual capacity.

- Developed machine learning-based models for estimation and regression problems.
- Algorithm developer, Matlab & Python environment - physiological signal processing.

## **Selected First Author Publications**

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**Aviv Shamsian**, Aviv Navon, Neta Glazer, Gill Hetz, Joseph Keshet. *Keyword-guided Adaptation of Automatic Speech Recognition, InterSpeech 2024.*

**Aviv Shamsian**, Aviv Navon, David W Zhang, Yan Zhang, Ethan Fetaya, Gal Chechik, Haggai Maron. *Improved Generalization of Weight Space Networks via Augmentations, ICML 2024.*

**Aviv Shamsian**, Aviv Navon, Neta Glazer, Kenji Kawaguchi, Gal Chechik, Ethan Fetaya. *Auxiliary Learning as an Asymmetric Bargaining Game, ICML 2023.*

**Aviv Shamsian**, Aviv Navon, Ethan Fetaya, Gal Chechik. *Personalized Federated Learning using Hypernetworks, ICML 2021.*

**Aviv Shamsian**, Ofri Kleinfeld, Amir Globerson, Gal Chechik. *Learning Object Permanence from Video, ECCV 2020.*

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## **Other Publications**

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Neta Glazer, Aviv Navon, Yael Segal, **Aviv Shamsian**, Hilit Segev, Asaf Buchnick, Menachem Pirchi, Gil Hetz, Joseph Keshet. *UmbrATTS: Adapting Text-to-Speech to Environmental Contexts with Flow Matching, ICML WMLA 2025.*

Yael Segal-Feldman, **Aviv Shamsian**, Aviv Navon, Gill Hetz, Joseph Keshet. *Whisper in Medusa's Ear: Multi-head Efficient Decoding for Transformer-based ASR, ICASSP 2025.*

Gil Ayache, Menachem Pirchi, Aviv Navon, **Aviv Shamsian**, Gill Hetz, Joseph Keshet. *WhisperNER: Unified open named entity and speech recognition, ASRU 2025.*

Aviv Navon, **Aviv Shamsian**, Yael Segal-Feldman, Neta Glazer, Gil Hetz, Yossi Keshet. *Target Speaker Extraction with Flow Matching, InterSpeech 2025.*

Aviv Navon, **Aviv Shamsian**, Ethan Fetaya, Gal Chechik, Nadav Dym, Haggai Maron. *Equivariant Deep Weight Space Alignment, ICML 2024.*

Yochai Yemini, **Aviv Shamsian**, Lior Bracha, Sharon Gannot, Ethan Fetaya. *LipVoicer: Generating Speech from Silent Videos Guided by Lip Reading, ICLR 2024.*

Rishabh Tamirisa, Chulin Xie, Wenxuan Bao, Andy Zhou, Ron Arel, **Aviv Shamsian**. *Fedselect: Personalized Federated Learning with Customized Selection of Parameters for Fine Tuning, CVPR 2024.*

Aviv Navon, **Aviv Shamsian**, Neta Glazer, Gill Hetz, Joseph Keshet. *Open-Vocabulary Keyword-Spotting with Adaptive Instance Normalization, ICASSP 2024.*

Aviv Navon, **Aviv Shamsian**, Idan Achituv, Ethan Fetaya, Gal Chechik, Haggai Maron. *Equivariant Architectures for Learning in Deep Weight Spaces, ICML 2023 (Oral, top 2.3%).*

Honglu Zhou, Asim Kadav, **Aviv Shamsian**, Shijie Geng, Farley Lai, Long Zhao, Ting Liu, Mubbasir Kapadia, Hans Peter Graf. *COMPOSER: Compositional Reasoning of Group Activity in Videos with Keypoint-Only Modality, ECCV 2022.*

Aviv Navon, **Aviv Shamsian**, Idan Achituv, Haggai Maron, Kenji Kawaguchi, Gal Chechik, Ethan Fetaya. *Multi-Task Learning as a Bargaining Game, ICML 2022.*

Aviv Navon, **Aviv Shamsian**, Gal Chechik, Ethan Fetaya. *Learning the Pareto Front with Hypernetworks, ICLR 2021.*

Idan Achituv, **Aviv Shamsian**, Aviv Navon, Gal Chechik, Ethan Fetaya. *Personalized Federated Learning with Gaussian Processes, NeurIPS 2021.*

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## **Volunteering**

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2018-2023: "Big Brother" Project - As part of the Big Brother project, we accompany youth at risk and guide them.