ILEANA RUGINA

(617) 655-4815 | irugina1.github.io | ileana.rugina.2@gmail.com

Machine learning researcher focused on efficiency and safety, with industry experience in conversational AI and biotech.

RESEARCH AND WORK EXPERIENCE

PhD Researcher at Institute of Science and Technology Austria (ISTA)
Klosterneuburg, Austria — Sep. 2025 – Present
Advised by Dan Alistarh and Christoph Lampert.

Software Engineer at Emerald Innovations
Cambridge, MA, USA — Oct. 2023 – Jun. 2025
Built ML systems extracting biomarkers from RF signals for in-home patient monitoring in clinical trials (e.g. Sanofi).
- Cut cloud spend by 70% and key latencies from hours to minutes: moved ML workloads to spot instances, refined the job scheduler, redesigned data models, and consolidated infrastructure onto multi-tenant clusters.
- Rolled out a manifest service tracking asynchronous uploads from a fleet of IoT sensors.
- Shipped on-device software for the sensor fleet; responsible for production device operations.

Machine Learning Software Engineer at Gridspace
Los Angeles, CA, USA — Sep. 2021 – Oct. 2023
Built speech and language AI systems for leading finance and tech companies (e.g. USAA).
- Shipped controllable-prosody speech synthesis; eliminated ∼85% of hallucinations in Conformer ASR models.
- Implemented speculative decoding for LLM inference, cutting summarization latency by up to 40%.
- Led data collection across in-house and third-party teams for transcription and LLM instruction tuning.
- Mentored interns; owned production deployments and customer-facing demos.

MEng Research Assistant at MIT Soljačić Lab — Jul. 2019 – Jun. 2021
- Developed a data-informed, task-agnostic attention-pruning method for transformers; sparse GPU kernels cut memory footprint by 30% and sped up inference by 10%.
- Introduced a few-shot multi-task conditional image-generation benchmark and improved conditional GANs with meta-learning and contrastive pretraining.

Earlier experience — 2017 – 2018
Research internships at Celixir (ML for cell-image analysis) and Shell Technology Centre Bangalore (graph algorithms accelerating physics simulations).

EDUCATION

Institute of Science and Technology Austria (ISTA), Klosterneuburg, Austria — Sep. 2025 – Present
PhD in Computer Science

Massachusetts Institute of Technology, Cambridge, MA, USA — Sep. 2015 – May 2021
MEng in EECS (5.0/5.0 GPA), BS in EECS and Physics

SKILLS

- ML: PyTorch, JAX; NLP, speech recognition and synthesis, efficient inference, model compression
- Systems: infrastructure (GCP, AWS, Docker, Kubernetes, Terraform), distributed systems (RabbitMQ, Redis), observability (Prometheus, Grafana)

PUBLICATIONS AND HONORS

Peer-Reviewed Publications:
- A. Hasan, **I. Rugina**, A. Wang; *Pruning for Protection: Increasing Jailbreak Resistance in Aligned LLMs Without Fine-Tuning*; BlackBoxNLP @ EMNLP 2024
- **I. Rugina**, R. Dangovski, L. Jing, P. Nakov, M. Soljačić; *Data-Informed Global Sparseness in Attention Mechanisms for Deep Neural Networks*; LREC-COLING 2024
- **I. Rugina**, R. Dangovski, M. Veillette, P. Khorrami, B. Cheung, O. Simek, M. Soljačić; *Meta-Learning and Self-Supervised Pretraining for Storm Event Imagery Translation*; IEEE HPEC 2023
- P. Khorrami, O. Simek, B. Cheung, M. Veillette, R. Dangovski, **I. Rugina**, M. Soljačić, P. Agrawal; *Adapting Deep Learning Models to New Meteorological Contexts Using Transfer Learning*; IEEE Big Data 2021

Silver Medal – Asian Physics Olympiad; **Bronze Medal** – International Physics Olympiad — 2015