# Ido Pinto

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## EDUCATION

**The Hebrew University of Jerusalem** **Mar 24 - Jul 26**

*Master of Science in Computer Science, advised by Prof. Guy Katz,* ***GPA 97.7 (Cum Laude)***

- First author of the paper **"Not All Invariants Are Equal"** accepted for poster presentation @ **ICML** (Seoul, July 26).
- Delivered an oral presentation of thesis research @ the **RobustifAI** Consortium (hosted by **Siemens**, Belgium, Feb 26).

**The Hebrew University of Jerusalem** **Oct 20 - Mar 24**

*Bachelor of Science in Computer Science,* ***GPA 87.2***

## RESEARCH PROJECTS

**M.Sc. Thesis Research** | Advisor: Prof. Guy Katz **Oct 25 - Present**

***Not All Invariants Are Equal: Curating Training Data to Accelerate Program Verification with SLMs***

**Ido Pinto**, Y. Y. Elboher, H. Wu, N. Narodytska, G. Katz. **ICML 2026** (poster).

- Led the project end-to-end in collaboration with international researchers from **VMware Research**.
- Fine-tuned Small Language Models (SLMs) to generate strong loop invariants that accelerate program verification.
- Proposed **WONDA**, a novel data curation pipeline consisting of AST-based invariant normalization and LLM-driven invariant simplification engine to extract high-quality training loop invariants for supervised fine-tuning.
- Doubled baseline invariant correctness and doubled verified speedup rates.
- Enabled a 4B model to match a GPT-OSS-120B model's utility and approach GPT-5.2.

**Verifier-in-the-Loop LLM Agents for Code Repair** | Advisor: Prof. Guy Katz **Jul 25 - Oct 25**

***Do Counterexamples Help LLMs Repair Dafny Programs?***

- Designed an iterative repair agent that pairs a reasoning LLM with a formal verifier, evaluating how counterexample traces and reasoning effort affect success on 497 unverified Dafny programs from DafnyBench.
- Found that counterexamples did not improve overall repair rates, but runs with and without them succeeded on different programs; combining the two reaches 62.4% (+8 points over either alone).

**NLP for Medicine & Science** | Advisor: Dr. Tom Hope **Oct 24 - May 25**

***BioAspire: Exploring Document Similarity Models With BioNER Augmentations and Modern Backbones***

- Reproduced and extended the ASPIRE multi-vector document similarity framework on biomedical retrieval benchmarks; fine-tuned ModernBERT and gte-Qwen2-1.5B encoders with co-citation contrastive learning, and experimented with BioNER-based input augmentation via ScispaCy and UMLS entity linking.

**Advanced NLP Course Research Project** | Advisor: Prof. Roy Schwartz **May 24 - Sep 24**

***DM-ICCL: Improving In Context Learning through DataMap-Based Curriculum***

- Developed DM-ICCL, a novel In-Context Learning framework that optimizes few-shot prompting by combining curriculum learning theory with semantic similarity retrieval.
- Engineered a diagnostic pipeline to categorize candidate demonstrations by difficulty (easy, ambiguous, hard) based on confidence and variability measures.
- Achieved a 5.5% accuracy gain over baselines on Multiple Choice Question Answering (MCQA) benchmarks by evaluating DM-ICCL across open-source models like Llama-3, Gemma-2, and Phi-3.5.

## WORK EXPERIENCE

**Teaching Assistant (Grader) @ The Hebrew University of Jerusalem** **Oct 24 - Apr 26**

Evaluated student assignments and exams and handled grade rebuttals across three semesters in:
Object-Oriented Programming (Fall 24), Machine Learning (Spring 25), Software Engineering & Communication Networks (Fall 25)

## TECHNICAL SKILLS

**Languages:** Python, C, C++, Java, SQL
**Frameworks/Libraries:** Transformers, W&B, Weave, spaCy, vLLM, Unsloth, OpenAI Agents SDK, DSPy, NumPy, PyTorch, Pandas, OpenCV
**Tools:** Git, Linux, Bash, Slurm, Docker

## VOLUNTEERING

**Forstart** **Oct 22 - Jun 23**

*Python Instructor*

- Taught Python programming fundamentals to underprivileged middle school students, providing foundational technical education.