# Sohaila Abdulsattar

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## Education

**New York University** **2026-2031**
*Doctor of Philosophy in Computer Science* *New York/Abu Dhabi, US/UAE*
**Advisor**: Sarah Nadi (SANAD Lab)
**Funding**: NYUAD Global PhD Fellowship

**New York University Abu Dhabi** **2022-2026**
*Bachelor of Science in Computer Science; Minor in Applied Mathematics* *GPA: 4.0/4.0*
**Honors**: *summa cum laude*, University Honors Scholar (NYU Founder's Day Award)
**Study Abroad Semesters**: NYU New York, NYU Berlin, NYU Athens

## Publications

- Francisco Ribeiro, **Sohaila Abdulsattar**, Renata Gonzalez, Mahmoud Kassem, and Sarah Nadi. 2026. "On the Robustness of LLMs' Internal Representation of Code Correctness." arXiv:2608.08266. *Accepted at ICSE 2027.*
- **Sohaila Abdulsattar**, and Keith Ross. 2026. "Arabic Dialect Translation with Small LLMs: Enhancing through Reasoning-Oriented Reinforcement Learning." ACL Anthology, March, 84–99. https://aclanthology.org/2026.abjadnlp-1.11/.
- Almesafri, Amna, **Sohaila Abdulsattar**, Alia Alblooshi, AlJuboori, Raed A, Nicholas Jephson, and Nidal Hilal. 2024. "Waters of Contention: The GERD and Its Impact on Nile Basin Cooperation and Conflict." Water 16 (15): 2174. https://doi.org/10.3390/w16152174.

## Research Experience

**SANAD Lab, NYU Abu Dhabi** **May 2026 - Present**
*Graduate Research Assistant* *New York/Abu Dhabi, US/UAE*
- Ran a 576-configuration sweep on how construction method, prompt framing, and hidden-state read-out location affect a learned code correctness direction across 4 open-weight LLMs and 2 benchmarks
- Designed a layer-wise correlation analysis isolating variation orthogonal to an LLM's internal code-correctness direction, testing whether its hidden states track program semantics or surface form

**eBRAIN Lab, NYU Abu Dhabi** **Jan 2026 - May 2026**
*Research Assistant* *Abu Dhabi, UAE*
- Identified frequency bands necessary to an audio jailbreak against the Qwen2-Audio LLM, cutting attack success from 77% to 5% across 520 prompts by removing a single band from the attack perturbation
- Disproved that the attack hides in one frequency band by testing each band in isolation and showing that necessity and sufficiency rankings are anticorrelated at $-0.58$

**Undergraduate Capstone, NYU Abu Dhabi** **Feb 2025 - May 2026**
*Advisor: Keith Ross* *Abu Dhabi, UAE*
- Ran zero-shot evaluation, supervised fine-tuning, and reinforcement-learning optimization of Qwen-2.5 models for translating between Arabic dialects and English
- Showed that an RL-trained 3B model doubles translation quality over a 7B supervised fine-tuning baseline (BLEU 17.4 to 34.9); published as a first-author paper in the Abjad-NLP ACL Anthology workshop

**NYU Multimedia and Visual Computing Lab** **Feb 2024 - Dec 2024**
*Research Assistant* *New York/Abu Dhabi, US/UAE*
- Cut per-request API costs to zero in a real-time speech-to-speech agent, replacing the Pipecat framework's paid model dependencies with self-hosted models
- Secured an international research grant from the 5th Forum for Women in Research, selected from 850+ submissions across 57 countries, for our multimodal AI project on seamless human-robot interaction

**The Future of Work Lab, University of Melbourne** **June 2023 - Aug 2023**
*Web Application Developer* *Melbourne, Australia (Remote)*

- Built a web-based experiment platform studying gender differences in multitasking, measuring how interruptions affect performance across three puzzle tasks
- Developed the full stack, with an HTML, CSS, and JavaScript front end and a Firebase backend that recorded participants' response times and accuracy in real time
- Collaborated closely with the research team, providing regular updates, seeking feedback, and addressing inquiries to ensure the web development aligned with project requirements

## Industry and Teaching Experience

**ChatSign Technology (NYU Abu Dhabi Spinoff)** **Jan 2025 - Dec 2025**
*Founding Machine Learning Engineer* *Abu Dhabi, UAE*

- Tripled translation quality (BLEU-4 5.28 to 17.8) on the PHOENIX14T sign language benchmark by isolating vision-encoder pretraining from a jointly trained decoder
- Cut pretraining epoch time 8× (117 to 14 mins) by tracing the bottleneck to an I/O-bound SSHFS mount, piping the dataset through tar to fit it on server disk
- Collaborated with Deaf and Hard-of-Hearing partners to iteratively test, evaluate, and improve our models' translation accuracy and ensure usability in real-world interactions

**iD Tech** **Jun 2025 - Aug 2025**
*AI & Machine Learning Instructor* *New York, US*

- Taught 24 middle and high school students across 4 AI and ML courses covering supervised learning, neural networks, and model evaluation using TensorFlow, Keras, NumPy, and Pandas
- Debugged 30+ student projects during class, isolating root causes across syntax, data loading, and model architecture
- Tailored lessons and exercises to match students' different levels of programming experience

## Leadership and Service

**Women in Computer Science, NYU Graduate Student Club** **Oct 2026 - Present**
*Board Member* *New York, US*

- Organizing events supporting PhD students from underrepresented groups in computer science

**HackED, NYU Abu Dhabi Student Club** **Sep 2025 - May 2026**
*President (2026), Vice President (2025)* *Abu Dhabi, UAE*

- Organized workshops, panels, mixers, and industry connections for the campus' 700+ member tech community

**weSTEM, NYU Abu Dhabi Student Club** **Sep 2025 - May 2026**
*Programming Core Team Member* *Abu Dhabi, UAE*

- Coordinated programs and events that promote gender equity, mentorship, and inclusion in STEM

**NYU Abu Dhabi Student Government** **Jan 2024 - May 2025**
*Chair, Library & IT Committee (2025); Chair, Campus Spaces Committee (2024)* *Abu Dhabi, UAE*

- Led the Library & IT committee's first large-scale feedback campaign, engaging 100+ students to guide library and IT improvements on campus
- Advocated for student-raised concerns to campus administration, driving repairs and improvements to shared spaces

## Skills

**Research Methods**: Linear probing of LLM hidden states, supervised and RL fine-tuning, controlled ablation and occlusion studies, LLM evaluation
**Programming**: Python, C, C++, Go, JavaScript, OCaml, SQL, HTML/CSS
**ML and Tools**: PyTorch, TensorFlow, Linux/UNIX, Git/GitHub, Docker, React, Firebase, MongoDB
**Languages**: Arabic (native), English (fluent)