Ilan Sela

Texas A&M University
Dept. of Electrical & Computer Engineering

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RESEARCH INTERESTS

Generative modeling and theoretical machine learning

EDUCATION

Texas A&M University — College Station, TX
M.S. in Computer Engineering — Expected: August 2027
Advisor: Dr. Tie Liu
GPA: 4.0/4.0

Texas A&M University — College Station, TX
B.S. with honors in Electrical Engineering — 2022 – 2025
Minor in Computer Science
GPA: 4.0/4.0

RESEARCH EXPERIENCE

Texas A&M University — College Station, TX

Graduate Researcher (with Prof. Tie Liu) — May 2025 – Present

- Developing a theoretical understanding of one-step image generators by studying drift-based generative training dynamics.

Graduate Researcher (with Prof. Dileep Kalathil) — May 2026 – October 2026

- Reduced reliance on fixed, human-designed search rules by developing AgentDiscover, in which a coding agent directs scientific discovery and proposes candidates.
- Improved long-horizon search efficiency by designing a graph-based memory that allows fresh agents to retrieve and reuse prior ideas and candidate lineages.

Research Project — March 2026 – May 2026

Reinforcement Learning-Based Calibration for Radar Systems

- Reduced reliance on costly measurement equipment and repeated radar access by developing an offline reinforcement learning framework for automated MIMO calibration.
- Improved reconstructed image quality by formulating calibration as a Markov decision process with a target-independent image-quality reward.

Undergraduate Researcher (with Prof. Tie Liu) — August 2024 – May 2025

- Addressed query-free black-box optimization by fine-tuning FLAN-T5 to generate candidate designs directly from offline data.
- Compared one-step and multi-step generation strategies, producing designs that exceeded the best offline examples.

Undergraduate Researcher — May 2023 – May 2024

Secure and Trustworthy Hardware (SETH) Lab

- Integrated and validated an RL-based query-selection policy for FuncTeller, a black-box eFPGA reconstruction attack.

PUBLICATIONS AND RESEARCH OUTPUT

- Mahdi Farahbakhsh, **Ilan Sela**, Fatemeh Doudi, Vishnu Teja Kunde, Krishna Narayanan, Jean-Francois Chamberland, Dileep Kalathil. "AgentDiscover: Autonomous Discovery with Minimal Search Scaffolding." *arXiv:2610.05334*, 2026. Under review.
- Sumin Kim, **Ilan Sela**, and Muhammad Faeyz Karim. "A Reinforcement Learning-Based Self-Calibration Framework for Radar Systems in Offshore Crane Applications." *2026 Mary Kay O'Connor Safety & Risk Conference*, 2026. Conference presentation.
- **Ilan Sela**. "Black-Box Offline Optimization via Large Language Models." Undergraduate Research Scholars Program, Texas A&M University, 2025. Available: *Undergraduate Honors Thesis*

ACADEMIC HONORS

Graduate

- Qualcomm Graduate Scholarship Recipient (2025 – 2026)

Undergraduate

- Undergraduate Research Scholar, Engineering Honors, Summa Cum Laude, Dean's Honor (2022 – 2025)

TEACHING EXPERIENCE

Agentic Intelligence for Discovery and Exploration (AIDE) Workshop mentor, Texas A&M August 2026

- Mentored faculty and graduate students in designing and implementing agentic workflows for research problems.

Student Assistant for "ECEN 740: Machine Learning Engineering", Texas A&M January 2025 – May 2025

INDUSTRY EXPERIENCE

Luminator Technology Group Plano, TX

Embedded Software and Electrical Engineering Intern May 2025 – August 2025

- Supported Flying Whales aircraft systems by developing embedded firmware for onboard microcontrollers.
- Eliminated cabin rewiring by developing a wireless LED-control retrofit for CRJ aircraft; the system became the company's primary R&D focus.
- Enabled LED driving and CAN-bus distribution for aerospace lighting systems through PCB designs in Altium.

TECHNICAL SKILLS

Languages: Python, C/C++, CUDA, MATLAB, Verilog, Java, Assembly
ML/Scientific Computing: PyTorch, TensorFlow, NumPy, SciPy
Embedded/Hardware: STM32, PIC, Altium

SELECTED COURSEWORK

- Machine Learning, Information Theory, Estimation and Detection Theory, Convex Optimization, Online Learning, Reinforcement Learning