Sebastian "Sebo" Diaz

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OVERVIEW

- HST MIT PhD candidate in RLE & CSAIL.
- Research interests in machine learning, (convex) optimization, representation learning, generalization, data augmentation, and reinforcement learning.

EDUCATION

Massachusetts Institute of Technology 2023 – May 2028 (expected)
Ph.D. HST (Computer Science) GPA: 5.00 / 5.00

University of Arizona 2019 – 2023
B.S. in Biomedical Engineering; Minor in Mathematics GPA: 3.95 / 4.00

INDUSTRY EXPERIENCE

Machine Learning Research, Stealth Startup May 2026 – Sept. 2026
Kendall Square, Cambridge, MA

- Post-training V/LLM research in non-verifiable RL settings.

FELLOWSHIPS & AWARDS

Graduate Research Fellowship Program, National Science Foundation 2024
MathWorks Graduate Fellow, MathWorks 2024
School of Engineering – Distinguished Graduate Student Fellow, MIT 2023
Program for Exemplary Mentoring Fellow, MIT 2023
Goldwater STEM Scholarship, Goldwater Foundation 2022
Sophomore of the Year, University of Arizona 2021
Native Health Care Scholar, Udall Foundation 2021

PUBLICATIONS

Lead Author

1. **Sebastian Diaz**, Polina Golland, Elfar Adalsteinsson, Neel Dey. "Why Invariance is Not Enough for Biomedical Domain Generalization and How to Fix It". *Preprint: arXiv:2604.02564*, 2026.
2. **Sebastian Diaz**, Benjamin Billot, Neel Dey, Mingxuan Zhang, Esra Abaci-Turk, Ellen Grant, Polina Golland, Elfar Adalsteinsson. "Robust Fetal Pose Estimation across Gestational Ages via Cross-Population Augmentation". *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2025.
3. **Sebastian Diaz**, Yamin Arefeen, Borjan Gagoski, Ellen Grant, Elfar Adalsteinsson. "Design of Novel RF Pulse for Fetal MRI Refocusing Trains Using Rank Factorization (SLfRank) to Reduce SAR and Improve Image Acquisition Efficiency". *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2022.

Contributing Author

1. Yingcheng Liu, Peiqi Wang, **Sebastian Diaz**, Benjamin Billot, Esra Abaci-Turk, Ellen Grant, Polina Golland. “Fetuses Made Simple: Modeling and Tracking of Fetal Shape and Pose”. *Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2025.
2. Molin Zhang, Nicolas Arango, **Sebastian Diaz**, Jacob White, Elfar Adalsteinsson. “Stochastic-Offset-Strategy Enhanced RF Pulse Optimization with Auto-Differentiation”. *International Society for Magnetic Resonance in Medicine (ISMRM)*, 2024.
3. Ricky Cordova, Kelli Kiekens, Susan Burrell, William Drake, Zaynah Kmeid, Photini Rice, Andrew Rocha, **Sebastian Diaz**, Shigehiro Yamada, Michael Yozwiak, Omar L. Nelson, Gustavo C. Rodriguez, John Heusinkveld, Ie-Ming Shih, David S. Alberts, Jennifer K. Barton. “Sub-Millimeter Endoscope Demonstrates Feasibility of In Vivo Reflectance Imaging, Fluorescence Imaging, and Cell Collection in the Fallopian Tubes”. *Journal of Biomedical Optics*, 2021.

INVITED TALKS

RepreSeg: Stable Representations for Domain Generalized Segmentation
MIT IMES Seminar, Cambridge, MA — Dec. 12, 2025

Learning Alongside Invariant Representations: Robust Generalization in Medical Imaging
MIT IMES Department Retreat, Boston, MA — Sept. 29, 2025

RELEVANT COURSEWORK

MIT	Deep Learning, Numerical Methods, Computer Vision, fMRI Neuroscience
Harvard Medical School	Pathology, Immunology, Genetics, Cardiovascular & Pulmonary Pathophysiology

SKILLS

Programming	Python, PyTorch, C++
Technical	Numerical optimization, probability

SERVICE

Reviewer, MICCAI: PIPPI — 2025–26
Reviewer, CVPR — 2026
Reviewer, NeurIPS — 2026