
Handling distribution shifts (in healthcare) like a pro!

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Clark S361

Abstract:

Distribution shifts, where deployment settings exhibit differences from training, are ubiquitous in real-world AI deployments. Moreover, AI models are fragile to distribution shifts. Why does this happen, and what can be done about it? This talk will outline modern principles and practices for implementing and deploying AI that is robust to distribution shifts, with comprehensive and practical insights. Some highlights will include the role of state-of-the-art approaches, from foundation models to finetuning, and the most appropriate methods in various settings. This talk will also briefly discuss how distribution shifts might interact with AI governance.

Short bio:

Sanmi Koyejo is an assistant professor in the Department of Computer Science at Stanford University. Koyejo leads the Stanford Trustworthy Artificial Intelligence (STAIR) lab, which works to develop the principles and practice of trustworthy machine learning, focusing on applications to science and healthcare. Koyejo has been the recipient of several awards, including outstanding paper awards (NeurIPS, UAI), a Skip Ellis Early Career Award, a Sloan Fellowship, a Terman faculty fellowship, an NSF CAREER award, a Kavli Fellowship, and an IJCAI early career spotlight. Koyejo serves on the Neural Information Processing Systems Foundation Board, the Association for Health Learning and Inference Board, and as president of the Black in AI organization.

Reading List:

- Tsai, K., Pfohl, S.R., Salaudeen, O., Chiou, N., Kusner, M., D'Amour, A., Koyejo, S. and Gretton, A., 2024, April. Proxy Methods for Domain Adaptation. In International Conference on Artificial Intelligence and Statistics (pp. 3961-3969). PMLR.
- Alabdulmohsin, I., Chiou, N., D'Amour, A., Gretton, A., Koyejo, S., Kusner, M. J., ... & Tsai, K. (2023, April). Adapting to latent subgroup shifts via concepts and proxies. In International Conference on Artificial Intelligence and Statistics (pp. 9637-9661). PMLR.

- Salaudeen, O., & Koyejo, S. (2024, April). Causally Inspired Regularization Enables Domain General Representations. In International Conference on Artificial Intelligence and Statistics (pp. 3124-3132). PMLR.