

Some intersections of photonics and AI

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I will present a few novel techniques for AI-aided discovery in photonics and materials science.

In particular, I will start by presenting a few shot learning technique for photonics [1]. Next, I will present “topogivity”, a machine learned chemical heuristic which can be used to predict whether a particular material has topological properties [2]. Finally, I will present a multi-modal learning AI technique for materials.

References

- [1] Charlotte Loh, Thomas Christensen, Rumen Dangovski, Samuel Kim & Marin Soljacic. Nature Communications Vol.13, Article number: 4223 (2022).
- [2] Andrew Ma, Yang Zhang, Thomas Christensen, Hoi Chun Po, Li Jing, Liang Fu, and Marin Soljacic. Nano Lett. Vol.23, p.772, (2023).
- [3] Viggo Moro, Charlotte Loh, Rumen Dangovski, Ali Ghorashi, Andrew Ma, Zhuo Chen, Samuel Kim, Peter Y. Lu, Thomas Christensen, Marin Soljacic. *arXiv:2312.00111*