

Max Apollo Bright, Ph.D.

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Skills: Computer Vision, End-To-End ML Model Training/Evaluating/Deploying, Applied Math, PyTorch

EXPERIENCE

Meta Platforms

December 2024–Present

Research Scientist, Harmful Content Team

Seattle, WA

- Designed and deployed machine-learning models to all Facebook and Instagram traffic to detect suicide/self-harm, reducing teen harmful content exposure by 3.8% to 10% across key surfaces.
- Owned end-to-end rollout of the first suicide/self-harm age-gate classifier on Facebook, scaling to 600k daily enforcements.
- Designed a mixture-of-experts architecture with grouped encoders for multi-modal classification; consolidated two production models into one framework without losing accuracy.
- Fine-tuned a LLM to detect harmful content, and outperformed purpose-built classifiers by 4%.
- Diagnosed a train/serving distribution shift through statistical analysis of enforcements; designed downsampling corrections that yielded 6% PRAUC gain with 50% less training data.
- Co-developed new infra for model training; engineered 1:1 backward-compatibility, reduced onboarding time from 1 week to 1 day, and drove team-wide adoption.
- Served as the primary engineer on the team for classifier reliability, owning recovery of five over-enforcement crises by debugging cross-team data pipelines.
- Built a LLM prompt and taught XFN team how to validate and iterate on it, enabling LLM-labeled training data; downstream knowledge-distillation doubled classifier PRAUC.
- Mentored a junior engineer through their first model launch.

ARiA

October 2022–December 2024

Research Engineer

Seattle, WA

- Improved semantic-segmentation accuracy by 9% on a company-critical contract by pairing an active-learning pipeline with self-supervised pretraining of a transformer-based denoiser.
- Designed and implemented a generative vision transformer to synthesize missing channels in satellite images for use in a YOLO-based object detector.
- Architected the foundation of and wrote API tooling for an open-source AI-assurance product “DataEval” and led a team of 8 scientists and engineers to deliver the first prototype.
- Used a few-shot domain-adaptation model to reduce field data collection needs by 90% without degrading accuracy for an image classifier.

University of Michigan

September 2018–August 2022

PhD Research Assistant, Radiation Laboratory

Ann Arbor, MI

- Designed and implemented algorithms for simulating long-range wave propagation in 3D using Gabor Transforms. Improved speed by three times over state-of-the-art methods.

EDUCATION

University of Michigan – Ann Arbor

September 2018–August 2022

PhD & MS in Electrical Engineering (Advisor: Eric Michielssen)

Dissertation: Fast Algorithms for Long-Range Wave Propagation Over Complex Terrain

University of Washington – Seattle

September 2014–June 2018

BS in Electrical Engineering, Minor in Applied Mathematics

- J. Christian, M. Bright, J. E. Summers, A. Olson, T. C. Havens, “Generative EO/IR multi-scale vision transformer for improved object detection,” *Proc. SPIE 13035*, Synthetic Data for Artificial Intelligence and Machine Learning: Tools, Techniques, and Applications II, 130350N. <https://doi.org/10.1117/12.3023596>
- M. Bright, J. Christian, R. Wood, J. E. Summers, “Unsupervised Vision-Transformer Training for Semantic Segmentation of Sparsely Labeled Datasets,” in *Naval Applications of Machine Learning*, San Diego, CA, 2024.
- M. Bright, E. Michielssen, “Gabor Frame-Based Sparsification of 3D Long-Range Propagation over Terrain,” in *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Denver, CO, 2022.
- M. Bright, E. Michielssen, “Long-Range Propagation in 3D with Gabor Frame-Based Sparsification and Radiation Boundary Conditions,” in *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Marina Bay Sands, Singapore, 2021. <https://youtu.be/hOF1t3N3C84>
- M. Bright, E. Michielssen, “Time-Frequency Jigsaw Puzzle for Gabor Frame-Based Propagation over Long Ranges,” in *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Marina Bay Sands, Singapore, 2021. <https://youtu.be/Aj2WwPLVYNo>
- M. Bright, E. Michielssen, J. Kusuma, “Hybrid Split-Step-Fourier–Finite-Difference Parabolic Equation Solver for Modeling Propagation Over Complex Terrain,” in *IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting*, Montreal, QC, 2020. <https://youtu.be/hEw75lOpwHo>
- M. Bright, A. Ishimaru, Y. Kuga, “Scattering from a Distribution of Rough Plates,” *Progress In Electromagnetics Research C*, Vol. 95, 1–13, 2019. <http://doi.org/10.2528/PIERC19043003>