

MIT Economist and Eridan Engineer Publish Landmark Research on Wireless Infrastructure and the Future of AI

New MIT CSAIL/Eridan paper argues that tech barriers to wireless densification are gone; regulatory reform is now the main obstacle to full AI economic growth.

SUNNYVALE, CA, UNITED STATES, July 9, 2026 /EINPresswire.com/ -- Eridan Communications today announced the publication of a new white paper co-authored by William Lehr, Research Affiliate at the Massachusetts Institute of Technology's Computer Science and Artificial Intelligence Laboratory (MIT CSAIL), and Douglas Kirkpatrick, Co-Founder and Chief Technology Officer of Eridan. The paper, titled *Wireless is the Connective Tissue of Our AI Future: Success Requires a Paradigm Shift in Both Wireless Technology and Regulation*, is now publicly available through the Social Science Research Network (SSRN) at [Eridan's website](https://www.eiridan.com) or at <http://dx.doi.org/10.2139/ssrn.6966318>.



Eridan develops fully digital 5G radios that combine Ultra-Clean Signal™ quality with unparalleled energy efficiency.

The paper makes the case that wireless infrastructure, specifically the transition to denser, lower-power small-cell networks, is the critical missing piece of AI infrastructure in the United States. As Lehr and Kirkpatrick write, wireless is "the central nervous system for our AI economy," and a significant shift in both deployed technology and the regulatory environment is necessary to realize AI's potential for economic growth and US global competitiveness. Two barriers have historically impeded that transition: one technological, one regulatory. The technological barrier, rooted in the inherent inefficiency of legacy radio designs, has been addressed through the commercial availability of a new class of radio hardware. The regulatory

barrier remains, encompassing antenna siting rules, outdated interference thresholds, and spectrum licensing structures that favor incumbent operators.

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ABOUT THE AUTHORS

William Lehr is a Research Affiliate at MIT CSAIL and a leading authority on the economics of telecommunications, Internet infrastructure, and spectrum policy. His research has informed spectrum policy debates at the FCC

and other regulatory bodies for more than two decades. Lehr has published extensively on wireless broadband economics, the co-evolution of wireless technology and regulation, and the infrastructure requirements of the digital economy. He has testified before Congress and contributed to regulatory proceedings on spectrum management, broadband policy, and the economics of next-generation wireless networks. His participation in this research represents an independent economic analysis of the wireless infrastructure challenge — grounded in decades of academic work, not industry advocacy.

Douglas Kirkpatrick is Co-Founder and Chief Technology Officer of Eridan Communications and the inventor of the switch-mode direct polar GaN radio architecture at the center of the paper's technical argument. This architecture enables full 5G performance at power levels comparable to a home WiFi router — a result previously considered theoretically understood but practically infeasible until the necessary advances in GaN semiconductor manufacturing, switching circuit design, and polar modulation converged. Kirkpatrick brings decades of experience in RF engineering, semiconductor design, and wireless systems, and is responsible for translating the physics described in the paper into commercially deployed hardware.

ABOUT ERIDAN

Eridan builds 5G cellular radios that deliver Ultra-Clean Signal™ performance with significantly less power. Based in Sunnyvale, California, Eridan is Powering Wireless AI with spectral and energy-efficient radio technology that enables carrier-grade performance at a fraction of the energy footprint.

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The image shows a white, rectangular 5G cellular radio device with the "ERIDAN" logo embossed on its front. It is set against a blue background. To the right of the device, technical specifications are listed: "2x2 40MHz" and "1024QAM". Below these, there are two logos: "Ultra-Clean Signal™" and "AI-Native RAN".

The future of wireless won't be built on more power.
It will be built on a cleaner signal

This press release can be viewed online at: <https://www.einpresswire.com/article/925498542>

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