Ilari Angervuori

Curriculum Vitae

Ilari Angervuori

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please find my GitHub and SoundCloud in the link.

Profile

A mathematically oriented wireless/NTN engineer with PhD-level expertise in LEO networks, stochastic geometry, and signal processing. 6+ years of experience in building simulation tools and algorithms to analyze interference, SIR/SINR, channel modeling, coverage, and routing for 3GPP NTN systems. Proven track record of production of R&D projects end-to-end: modeling, simulation, data analysis, and communication with cross-functional stakeholders. Looking to apply my NTN/LEO analysis and simulation expertise to solve real-world problems in the fast-paced industry/startups. I am motivated, ambitious, and a quick learner with a broad mathematical toolbox. Looking forward to hearing from you!

Core Skills

Languages/ Tools	PYTHON, C++, JAVA, C, OCTAVE, MATLAB, MATHEMATICA, GIT, LATEX, Linux operating system. Spoken languages: Native **Finnish**, fluent in **English**, good in **Swedish**, beginner in **Spanish**.
Domains	LEO/NTN comms, stochastic geometry, spatial and temporal channel fading models, SINR/SIR, interference, and other performance metrics, routing, ML for signal processing, constellation design.
Practices	Simulation design, algorithm prototyping, data analysis, stakeholder coordination, technical writing.

Experience and impact (hyperlinks in red)

5/2025- 9/2025 **Project Researcher**, *Aalto University*, Department of Electrical Engineering, Espoo, Finland
- Managed an R&D article project [1]: drove on-campus collaboration to deliver a spatio-temporal interference and ALOHA MAC analysis for LEO/NTN networks. - Built/maintained simulation code in MATLAB and OCTAVE.
Impact: - Derived a tractable interference correlation function enabling more efficient ML-based signal processing, including NTN channel responses and GPR signal estimation for 3GPP NTN and satellite imaging applications.

8/2023- 2/2024 **Visiting Researcher**, *University of Notre Dame*, Department of Electrical Engineering
- Designed and implemented analytical and simulation framework (MATLAB, MATHEMATICA) for 3GPP LEO uplink SIR meta distribution, enabling systematic exploration of constellation densities and terrestrial interference effects on link performance [2]. - Coordinated a distributed team (co-authors across institutions), handled the full delivery pipeline (simulation, analysis, documentation, peer review) to publication in IEEE Transactions on Communications.
Impact: - Identified an optimal LEO constellation density that maximizes average throughput and quantified the tradeoff between throughput and performance consistency, providing actionable guidance for dense LEO network design.

05/2019- 05/2025 **PhD Researcher**, *Aalto University*, Signal Processing of Wireless Networks, Espoo, Finland
- Conceived and executed an R&D project plan on cutting-edge NTN research [1],[2],[3],[4],[5],[6],[7],[8]. - Built and maintained a multi-language simulation stack (PYTHON, MATLAB, OCTACE, MATHEMATICA) including algorithms for analysis, simulation, and visualization, used across several research projects. - Secured competitive research grants. - Presented results to external audiences [2], [6]. - Supervised junior researchers.
Impact: - Laid novel stochastic geometry framework for analysis of NTN networks, reducing the simulation time in the order of magnitude hours to minutes compared to existing simulation tools [4]. - Developed and evaluated successive interference cancellation (SIC) algorithms that improved coverage performance by up to 900 percent in simulations, demonstrating the potential for substantial capacity gains in dense NTN deployments [8].

Education

2025 **Doctor of Science (PhD) (thesis in pre-examination)**, *Aalto University*, Signal Processing for 5G/6G/LTE/3GPP/NTN/LEO communications, stochastic geometry analysis and simulation.

2018 **MSc**, *Univ. of Helsinki*, Applied Analysis. PDEs, finite element method (FEM), antenna theory.

2016 **BSc**, *Univ. of Helsinki*, Applied Analysis. Optimal control theory, system performance optimization.

References

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○ Prof. Risto Wichman, Aalto University, risto.wichman@aalto.fi, +358 40 0800801

○ MsC. Abid Afridi, Aalto University, abid.afridi@aalto.fi