

Sidong Guo

+1-470-920-2559 | sguo93@gatech.edu | sidong_guo@seas.harvard.edu | sidongg.github.io | [SiDongG](#)

RESEARCH SUMMARY

Applying information and coding theory to the security analysis of communication, sensing and LLM agentic systems.

EDUCATION

- **Georgia Institute of Technology** Aug 2024 – Present
Ph.D. in Electrical and Computer Engineering (minor in Computer Science) – Advisor: Prof. Matthieu R. Bloch Atlanta, GA, USA
 - Research interests: Information and Coding Theory, Sequential Decision Making, ML Security/Physical Layer Security, Inference-Time Agentic Systems, LLM Steganography and Watermarking
- **Georgia Institute of Technology** Aug 2022 – May 2024
M.S. in Electrical and Computer Engineering – Advisor: Prof. Xiaoli Ma Atlanta, GA, USA
 - Thesis: Performance Analysis and Algorithm Design for Chirp-based Multicarrier Systems
- **Georgia Institute of Technology** Aug 2019 – May 2022
B.S. in Electrical Engineering, Summa Cum Laude Atlanta, GA, USA

RESEARCH EXPERIENCE

- **Information Theory Lab, Harvard University** May 2026 – Present
Research Fellow – Advisor: Prof. Flavio du Pin Calmon Cambridge, MA, USA
Information-theoretic generative steganography, covert communication between LLM agents.
- **Adaptive Communication Decision and Information Systems Group, Georgia Tech** Jun 2024 – Present
Graduate Research Assistant – Advisor: Prof. Matthieu R. Bloch Atlanta, GA, USA
Information-theoretic physical layer security, covert communication, integrated sensing and communication, sequential decision making.
- **Mobile Network and Adaptive Signal Group, Georgia Tech** Jun 2021 – May 2024
Undergraduate & Graduate Researcher – Advisor: Prof. Xiaoli Ma Atlanta, GA, USA
Chirp-based multicarrier waveforms (OCDM), multi-input multi-output (MIMO) networks, communication theory, and signal and array processing.

PUBLICATIONS

U = UNDER REVIEW, C = CONFERENCE, J = JOURNAL, T = THESIS

Preprints and Under Review

- [U.1] S. Guo, S. Vithana, A. Gilani, L. Sankar, O. Kosut and F. du Pin Calmon (2026). **Feedback Coding Enables Inference-Time Covert Agentic Communication**. Under review at *USENIX Security Symposium 2027 (Cycle 1)*. [arXiv:2609.24994] [Project page]

Conference Papers

- [C.1] S. Guo, T. Kann, T. Baluta and M. Bloch (2026). **Covert Multi-bit LLM Steganography: An Information Theory and Coding Approach**. To appear in *IEEE Information Theory Workshop (ITW)*, Tempe, AZ, USA, Nov 2026. **Best Student Paper Award finalist**. [arXiv:2605.16709]
- [C.2] S. Guo and M. Bloch (2026). **Secure Integrated Sensing and Communication against Communication and Sensing Eavesdropping**. In *IEEE International Symposium on Information Theory (ISIT)*, Guangzhou, China, Jun–Jul 2026. [arXiv:2601.23216]
- [C.3] S. Guo and M. Bloch (2025). **Rate-Reliability Region of Sequential Beam Alignment and Communication**. In *IEEE Information Theory Workshop (ITW)*, Sydney, Australia, Sep–Oct 2025. [IEEE Xplore] [PDF]
- [C.4] S. Guo, X. Li, Q. Wu and B. Shang (2024). **Detection Probability and Rate Tradeoff in MIMO-OFDM ISAC System With Imperfect Channel Information**. In *IEEE/CIC International Conference on Communications in China (ICCC)*, Hangzhou, China, Aug 2024. [IEEE Xplore] [PDF]
- [C.5] X. Li, K. Zheng, S. Guo and X. Ma (2023). **Precheck Sequence Based False Base Station Detection During Handover: A Physical Layer Security Scheme**. In *IEEE International Conference on Computer and Communication Engineering Technology (CCET)*, Beijing, China, Aug 2023, pp. 177–181. [IEEE Xplore]

Journal Articles

- [J.1] S. Guo, Y. Wang and X. Ma (2024). **Carrier Frequency Offset Estimation for OCDM with Null Subchirps**. *IEEE Signal Processing Letters*, vol. 31, pp. 606–610. [DOI:10.1109/LSP.2024.3359968] [arXiv:2311.01812]
- [J.2] X. Li, S. Guo and M. Shez (2024). **Sensing-Aided Peer-to-Peer Millimeter-Wave Communication**. *International Journal of Information Technology*, vol. 16, pp. 2069–2075. [DOI:10.1007/s41870-024-01768-3]

Thesis

[T.1] S. Guo (2024). **Performance Analysis and Algorithm Design for Chirp-based Multicarrier Systems**. M.S. thesis, Georgia Institute of Technology. Advisor: Prof. Xiaoli Ma.

HONORS AND AWARDS

- **Finalist, Best Student Paper Award**, IEEE Information Theory Workshop (ITW) Sep 2026
- **Department Prize for Outstanding Student Performance (Teaching Fellowship)**, Georgia Tech Apr 2025
- **Finalist, Software Defined Radio University Challenge**, Air Force Research Lab Aug 2023 – May 2024
- **Champion, GWENT Open #1**, GWENT Masters Season 2 (CD PROJEKT RED esports) Sep 2019 – Aug 2020
Also semi-finalist at GWENT Opens #3 and #4; world No. 1 in the Season 2 crown-point ranking (as “[Demarcation](#)”).

TEACHING AND MENTORING

- **Undergraduate Senior Thesis** Aug 2026 – Present
Mentor (with Prof. Flavio du Pin Calmon) Harvard University
- **ECE 6270 Convex Optimization** Jan 2025 – Apr 2025
Teaching Assistant (Teaching Fellowship) – Prof. Justin Romberg Georgia Tech
- **VIP 4801/4802/4803 Agile Communication** Jan 2022 – Present
Undergraduate, then Graduate Student Assistant – Prof. Matthieu R. Bloch Georgia Tech

SERVICE

- **Reviewer:** IEEE Transactions on Information Theory
- **Reviewer:** IEEE Transactions on Wireless Communications
- **Reviewer:** IEEE Signal Processing Letters
- **Reviewer:** IEEE International Symposium on Information Theory (ISIT)

SKILLS

- **Programming:** Python, MATLAB, C++, VHDL, R, JavaScript
- **Tools & Technologies:** PyTorch, TensorFlow, LLM inference on cloud GPUs, Ansys HFSS, Git, $\text{\LaTeX}$

ADDITIONAL INFORMATION

- **Languages:** Chinese (native), English (fluent), Japanese
- **Interests:** Tennis (NTRP 4.5), Chess (Chess.com Rapid/Blitz rating 2000)