

Dominance-Based Wireless Communication and Associated Solutions (#4713)

A dominance-based communication protocol that prevents waste of communication resources

Georgia Tech researchers have developed a dominance-based communication protocol that addresses collisions without wasting communications resources. This solution improves upon current systems by allowing for more than one simultaneous transmission. The wireless access points on the device can be configured to enable a plurality of wireless clients to wirelessly connect to the wireless access points. The wireless access points can be configured to encode data packets destined for the wireless clients with a collision coding scheme. This way wireless data packets concurrently transmitted from at least two wireless access points colliding in air can be decoded at the wireless clients with the collision coding scheme so that data packets are not affected by collisions with another data packet.

Benefits/Advantages

- **Productivity** — allows more than one simultaneous transmission
- **Decodes collided data** — results in successful data transmissions

Potential Commercial Applications

- Communication devices and protocols
- Wireless communication protocols
- Wireless communication devices, systems, and methods

Background/Context for This Invention

Collisions in a communication network, or interference between multiple co-channel signal transmissions when arriving simultaneously at a receiver, typically render the intended signal non-decodable and contribute to reduced communication network performance. Current techniques to avoid collisions include protocols to prevent, avoid, or ignore collisions. However, these solutions result in a waste of communications resources.

Dr. Raghupathy Sivakumar

Vice President of Commercialization and Chief Commercialization Officer, Georgia Tech

Cheng-Lin Tsao

Graduate Research Assistant - Georgia Tech School of Electrical and Computer Engineering

Sriram Lakshmanan

Graduate Research Assistant - Georgia Tech School of Electrical and Computer Engineering

More Information

U.S. Patent Issued - [8,179,841](#)

Publications

For more information about this technology, please visit:

<https://licensing.research.gatech.edu/technology/dominance-based-wirless-communication-and-associated-solutions>

Images:

The automated sequential delivery of multiple fluids. A varying number of delay gates imprinted in the branches are shown in the figure.

COVID-19 and flu saliva test on paper: (A) The automatic sequential delivery of multiple reagents required for virus test; (B) Water pouring into the device triggers the virus assay, allowing the presence of SARS-CoV-2 and influenza A & B viruses to be visually identified by the color changes in the corresponding detection spot

