



**Carnegie Mellon University**

Computer Science Department

---

# **Speaking Skills Talk**

## **Algorithms and Hardness on Geometric Graphs**

**Timothy Chu**

**Thursday, January 14, 2021**

**11:00 am**

**REMOTE**

**For a class of dense graphs generated from geometric points in  $d$  dimensions, we show almost-input-time algorithms and fine-grained hardness results for tasks ranging from matrix-vector multiplication, spectral sparsifier construction, and Laplacian system solving.**

**As a consequence of our work, we show fast algorithms to perform maximum flow, sparse cut, and effective resistance computation quickly on such graphs.**