

### **Small-scale demolition operation experiments for resilience and sustainability**

Debris removal operations are critical during post-disaster recovery. Speedy removal and collection of disaster debris enable searching for and rescuing potential survivors on time while expediting the overall recovery of affected communities. Meanwhile, careful separation and collection of materials from a mix of debris increase the possibility of material recycling and reuse (thereby minimizing environmental impacts) at the cost of productivity. Since heavy equipment (such as excavators) is mainly used in disaster debris operation, operators' skills and the design of excavator buckets have been known as critical factors for the successful operation of disaster debris. In this project, we will study the operation of disaster debris and test different designs of buckets by simulating different recovery scenarios with small-scale excavators and trucks. Motion data of heavy machines will be collected and analyzed to guide the operation of debris and the design of buckets. If interested, send your resume to Dr. Juyeong Choi.

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