



### subprocedures

DoAE: direction of arrival estimation

UID : user identification

DoAT: DoA tracking

BF : beam forming

SF : spatial filtering

### variables

DoA : direction of arrival

$\mathbf{i}$  : identification sequence

$\mathbf{X}, \mathbf{x}$  : signal model

$\text{DoA}_T$ : DoAs up to date

$\hat{x}(t)$  : filtered signal