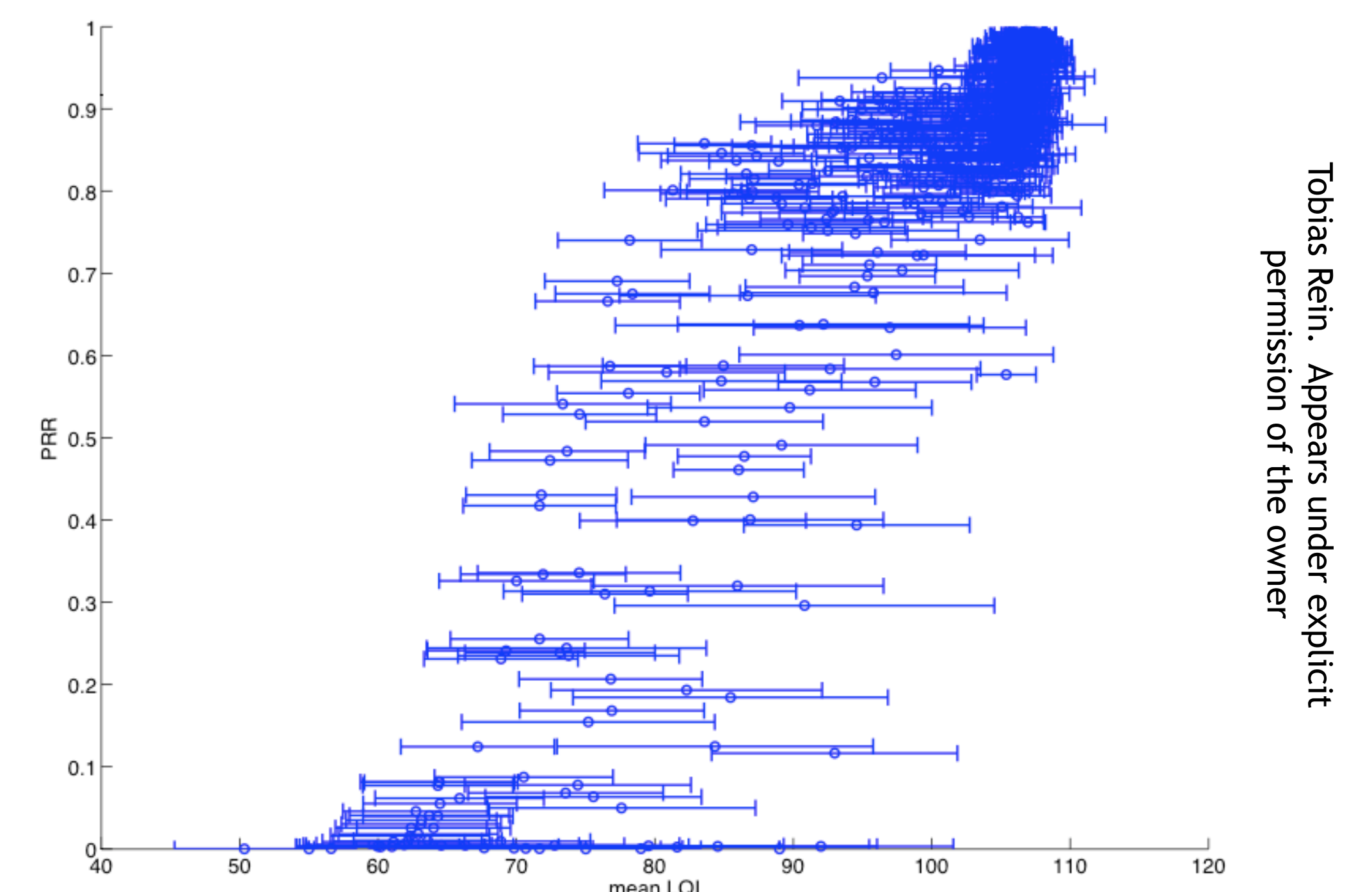


# Exploiting the LQI Variance for Rapid Channel Quality Assessment

C. A. Boano, T. Voigt, A. Dunkels, F. Österlind, N. Tsiftes, L. Mottola, P. Suárez  
 Swedish Institute of Computer Science (SICS – Sweden)  
 Networked Embedded Systems Group  
 Contact author: [cboano@sics.se](mailto:cboano@sics.se)

- LQI behaves more linearly than RSSI w.r.t. PRR
- Several packets needed to obtain a reliable estimation (~120, Srinivasan et al.) because of the high LQI variance



- LQI variance is not necessarily a limitation
- Can distinguish very good/reliable links from average/bad links
- Our reasoning:
  - the better the link, the better the LQI
  - LQI reaches a saturation point
  - very good links (PRR close to 100%) have low LQI variance
- Setup: 256 packets sent in every 802.15.4 channel
  - every channel with PRR > 98% has LQI variance in the order of hundreds
  - all others have much higher variance
- LQI variance stabilizes rapidly: no need for many packets
- Future work: link estimator incorporating LQI variance

