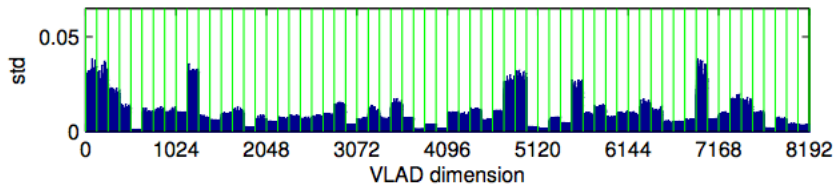
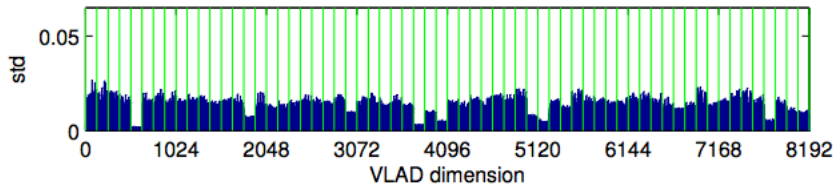


(a) Original VLAD normalization (L2)



(b) Signed square rooting (SSR) followed by L2



(c) Intra-normalization (innorm) followed by L2