$$\frac{|\alpha^T Y_1|}{|\alpha^T Y_2|} = \frac{|\alpha_1 Y_{11} + \cdots + \alpha_n Y_n|}{|\alpha_1 Y_{21} + \cdots + \alpha_n Y_{2n}|}$$

slow way of estimating λ.

$\rightarrow$ estimate eigenvector faster

$X \sim \mathrm{Cauchy}(0, 1)$.

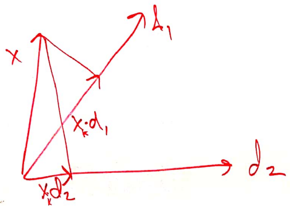
$$f_X(x) = \frac{1}{\pi}\frac{1}{1+x^2}$$

$$\Rightarrow \int |x| f_X(x)\,dx$$

$$= \frac{2}{\pi}\int \frac{x}{1+x^2}\,dx$$

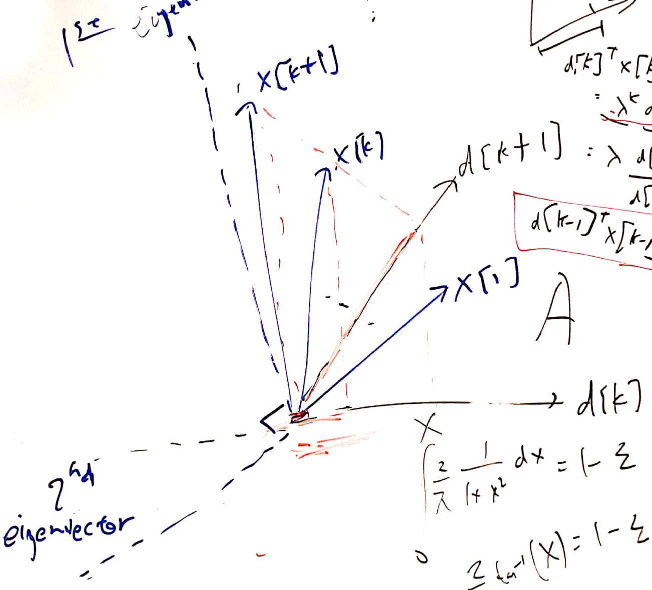
$(\vec{d}_k \cdot \vec{x}_k)(\vec{d}_{k-1} \cdot \vec{d}_k)$

$\|\vec{x}_k\| \cos\theta_{d_k, x_k} \cdot \cos\theta_{d_k d_{k-1}}$



$x[0] = \vec{v}_1$

$\vec{x}$
$\lambda\vec{x}$
$\lambda^2\vec{x}$
$\vdots$



A

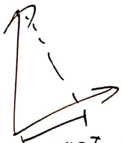
x

$$\int_0^x \frac{2}{\pi}\frac{1}{1+x^2}\,dx = 1-\xi$$

$$\frac{2}{\pi}\tan^{-1}(x) = 1-\xi$$

$$x = \tan\left(\frac{\pi}{2}(1-\xi)\right)$$

$x[k] = \lambda^k x[0]$



$d[k]^T x[k] + \xi$

$= \lambda^k d[k]\ x[0]$

$\lambda_1, \lambda_2, \ldots$

$x[0] = \vec{x}_1 + \vec{x}_2$

$$\frac{\lambda_2^k \|x_2\|}{\lambda_1^k \|x_1\| + \lambda_2^k \|x_2\|}$$

$$\frac{\lambda_2^k}{\lambda_1^k}\left(\frac{\|x_2\|}{\|x_1\|}\right)$$

$$d[k+1] : \lambda \frac{d[k-1]^T x[k-1] - \xi}{d[k-1]^T v + \xi}\left(d[k]^T v - \xi\right)$$

$$\boxed{d[k-1]^T x[k-1] = \lambda^{k-1} d[k-1]^T x[0]}$$