2021 年春季学期第 3 周

Review:

$$\underbrace{\overline{\Phi}}_{t} = \left\{ \phi_{t}(t), \phi_{t}(t), \cdots, \phi_{N}(t) \right\}$$

$$\underbrace{t \in Co, \tau}$$

$$S_i(t) = \sum_{j=1}^{N} S_{ij} \phi_j(t)$$

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Example: QPSK, BPSK
BPSK &= { = { J= wszafct}

{ s_1 = x , s_2 = - 2}

SUSTech	
(Nove the discussion on AWGIV here)	1 JAN
Receiver Structure	
Keceiver Pricture from Slides)	
Suppose message mining is sent Y(t) = Si(t) + n(t) $n(t)$: Gaussian Process Y(t) = Si(t) + n(t) $n(t)$: Gaussian Process Y(t) = Si(t) + n(t) $n(t)$: $y(t) = y(t)$ $y(t)$ $y(t$.+-Z
= $S_0^T S_i(t) \phi_j(t) dt + S_0^T n(t) \phi_j(t) dt$ = $S_0^T S_i(t) \phi_j(t) dt + S_0^T n(t) \phi_j(t) dt$	
where nj = Sonit) & (t) dt = < nt), &; (t)	1>
rewrite not) as not)=nr(t) + \(\frac{2}{2}\)n;\(\phi_{j}(t)\)	
$\Rightarrow \int_0^1 n_r(t) \cdot \phi_j(t) dt + n_j = n_j$ $\Rightarrow \int_0^1 \epsilon n_r(t) \cdot \phi_j(t) dt = 0$	
=) Nr(t) and \$5(t) (Vj) are 1	
> noise without impact on signal receiv	riby

THE RESERVE OF THE PERSON NAMED IN

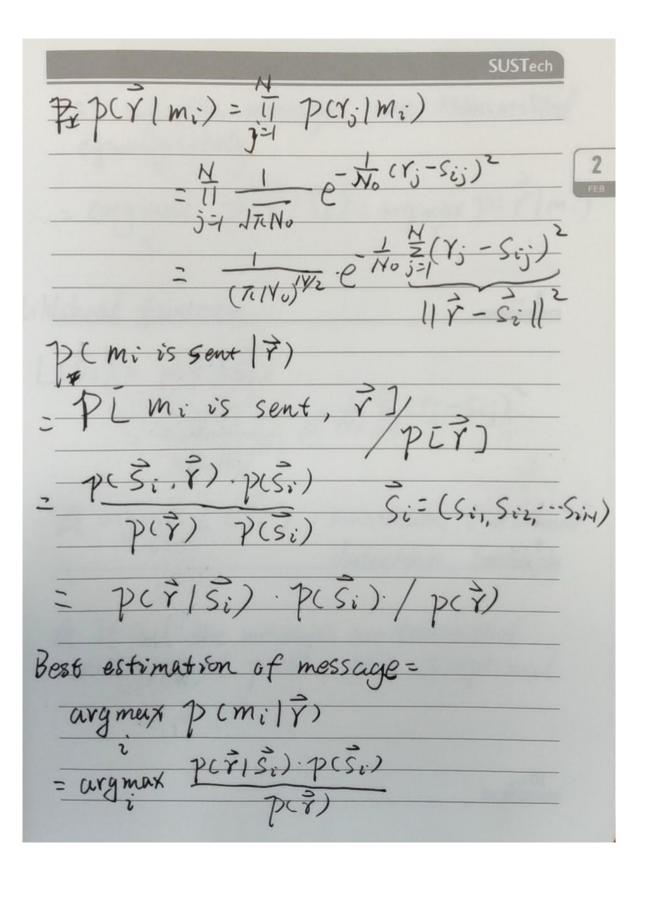
> vit) in optimal signal detection.

29 +t rj = Sij + nj

Nj is Gaussian. Einj]=Es[nit). ø; it)dt

30 +A

Fing Gaussian. $N(0, \frac{N_0}{2})$ $E[n_j^2] = E[\int_0^7 \int_0^7 n(t) \cdot n(t) \cdot \phi_j(t) \cdot \phi_j(t) dt dt]$ $= \int_0^7 \int_0^7 E[n(t) n(t)] \cdot \phi_j(t) \phi_j(t) dt dt.$ $= \int_0^7 \int_0^7 \frac{N_0}{2} \delta(t-1) \phi_j(t) \phi_j(t) dt dt.$ $= \int_0^7 \frac{N_0}{2} \phi_j(t) dt$ $= \int_0^7 \frac{N_0}{2} \phi_j(t) dt$ $= \frac{N_0}{2}.$



SUSTech = E[ST n(t) pi(t) clt. ST n(z) d. cz) dz = ST ST E [nut). n(z)) pr(t). ps(t) dtdz. = Sol No px(2) \$:(2) dz =0 nk. n; are independent. E[Yj|mi] = Sij Vj=1,...,N [Var[Yj|mi] = Var[nj]=14/2. COV [Yj Yrlmi] = E[(Yj - Sij) (Yr - Sir) [mi] = E[nj nr[mi] = SNO/2 , j=R Griven mi, syj ~ NO, No. vj Sij No. vj