$$\left\| \frac{d}{ds} w_{\sigma}(s) \right\| = \left\| \sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \right\} w_{\sigma}(s) x_{o} y_{o}^{o}$$

$$\sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \sum_{i=1}^{n} w_{\sigma}(s) x_{o} y_{o}^{o}$$

$$\sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \sum_{i=1}^{n} w_{\sigma}(s) x_{o} y_{o}^{o}$$

$$\sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \sum_{i=1}^{n} w_{\sigma}(s) x_{o}^{o} y_{o}^{o}$$

$$\sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \sum_{i=1}^{n} w_{\sigma}(s) x_{o}^{o} y_{o}^{o}$$

$$\sum_{i=1}^{n} (y_i - u_i(s)) \frac{1}{\sqrt{m}} a_{\sigma} x_i^{o} + 1 \sum_{i=1}^{n} w_{\sigma}(s) x_{o}^{o} y_{o}^{o}$$

$$\frac{1}{\sqrt{m}} = \frac{1}{2} |y_1 - u_2(s)| \leq \frac{1}{\sqrt{m}} ||y - u_2(s)||_2$$

$$\frac{1}{m} \left| \frac{y}{y} - \frac{u}{u} \cos \right|_{2} \leq \frac{\sqrt{n}}{\sqrt{m}} \left| \left| \frac{y}{y} - \frac{u}{u} \cos \right|_{2}$$

(to prove)

Consider : |x|

= ab

< 1101/2 11 bll2

< /n. || x || 2

(x is ony vector)

where a== 1 b= 1 21

(Coso e [-1, 1])

(where n is dimension of the Vector).

from this organishty that $x = (y - u(s)) \frac{1}{\sqrt{m}}$

$$\frac{dt}{dw^{(ct)}} = -\frac{3W^{(ct)}}{3W^{(ct)}} \qquad -0$$

$$\frac{da_{o}(t)}{dt} = -\partial L(W(t), a(t)) \qquad (2)$$

this can be replaced by Equation (2)

Consider
$$\frac{da_r(t)}{dt} = -\frac{\partial L(w(t), a(t))}{\partial a_r(t)}$$
 — (4)

$$L(W(H), a(H)) = \sum_{i=1}^{n} \frac{1}{a} \left(\varphi(W, a(H), \alpha_i) - y_i \right)^{\lambda}$$

and
$$f(w(t), a(t), x_i) = \frac{1}{\sqrt{m}} \sum_{r=1}^{m} a_r^{(t)} = (w_r(t), x_i)$$

$$\Rightarrow \frac{\partial L(w(t), a(t))}{\partial a_{r}(t)} = \sum_{i=1}^{n} (f(w(t), a(t), z_{i}) - y_{i}).$$

$$\frac{\partial a_{n}(t)}{\partial a_{n}(t)} = \sum_{i=1}^{n} (f(M(t), a(t), x_{i}) - y_{i}).$$

$$f(\omega_{CH}, \alpha_{CH}), \alpha_{C}) = \frac{1}{\sqrt{m}} \sum_{\tau=1}^{m} \alpha_{\tau}(t).\sigma(\omega_{\tau}(t).\alpha_{\tau})$$

$$\frac{\partial f}{\partial \alpha_{\tau}(t)} = \frac{1}{\sqrt{m}} \cdot \sum_{\tau=1}^{m} \sigma(\omega_{\tau}(t).\alpha_{\tau})$$

$$\frac{1}{\sqrt[3]{2}} \frac{du_{\cdot}(c+)}{da_{\cdot}(c+)} \cdot \left(\frac{da_{\cdot}(c+)}{dt}\right)$$

$$= -(4.)$$

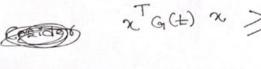
$$-\frac{1}{5} \frac{1}{m} = (w_{\gamma}(t), x_{1}) \cdot \frac{1}{m} = (w_{\gamma}(t), x_{2})$$

$$\frac{1}{5} \frac{1}{m} = (w_{\gamma}(t), x_{2}) \cdot \frac{1}{m} = (w_{\gamma}(t), x_{3})$$

$$=\underbrace{G_1}_{m} \underbrace{\sum_{i=1}^{m} \underbrace{\sum_{j=1}^{m} \left(u_i(t) - y_i\right)}_{j}}_{m} \underbrace{-G_1}_{m} \underbrace{\left(u_i(t) - y_i\right)}_{m} \underbrace{-G_1}_{m} \underbrace{\left(u_i(t) - y_i\right)}_{m} \underbrace{-G_1}_{m} \underbrace{\left(u_i(t) - y_i\right)}_{m} \underbrace{-G_1}_{m} \underbrace{-G_1}_{$$

$$\frac{1}{\sum_{i=1}^{m} \frac{du_{i}(t)}{da_{i}} \cdot \frac{da_{i}(t)}{dt}} = \sum_{i=1}^{m} \frac{1}{j^{-1}} \left(y_{j} - u_{j}(t), G_{i,j}(t) \right)$$

$$= -2(y - u + 2) + (-2(y - u + 2) + (-2$$



TG(t) 2 > 0 Since G(t) is Symmetric,
and positive Semidefinite)