

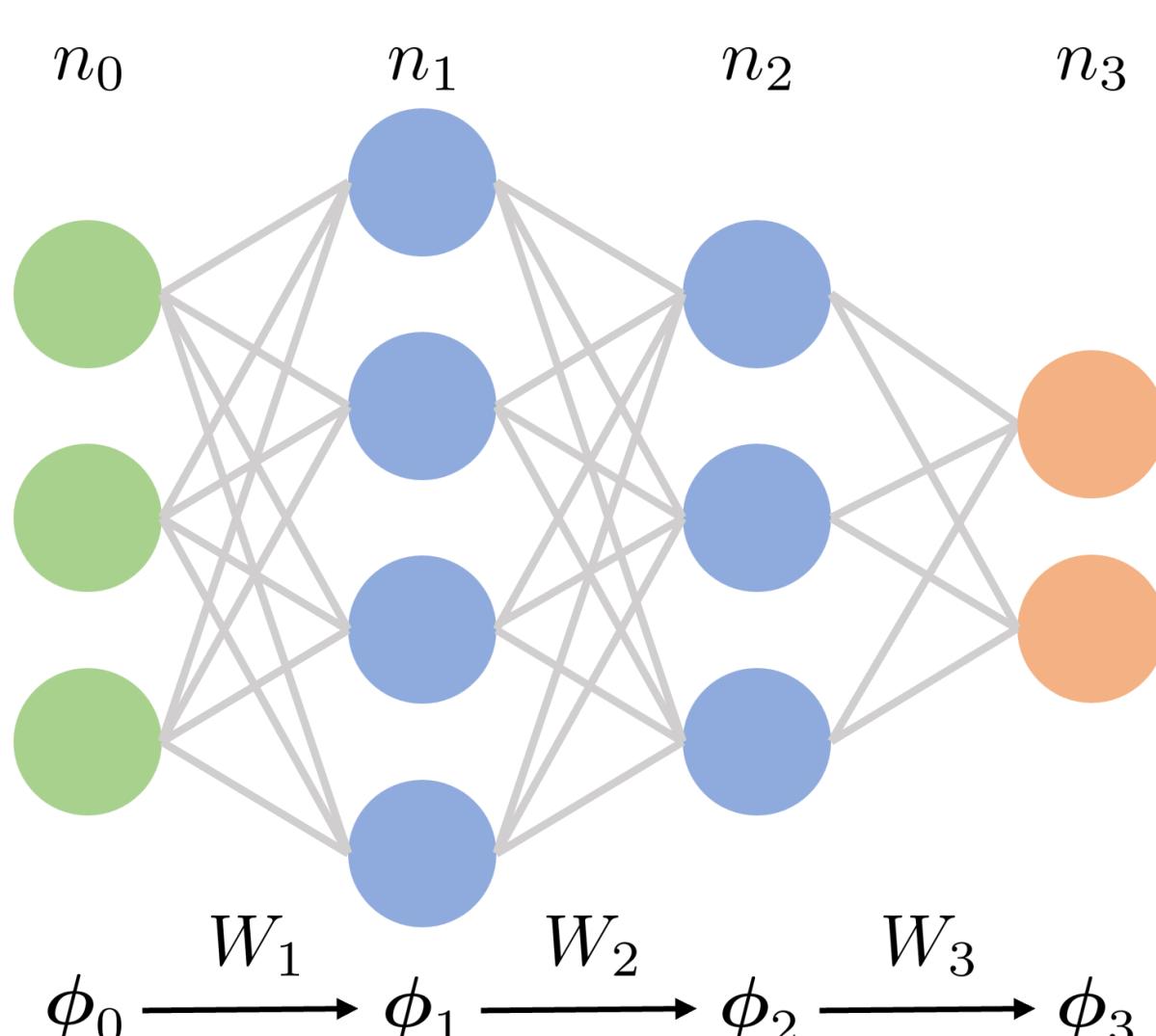
彭璣 B10901042

介紹

與系學會學術部合作，提供系上同學部課學習課外知識。依據本人興趣，提出開授「理論部課」，旨介紹一些與電機相關、較為數學的內容。

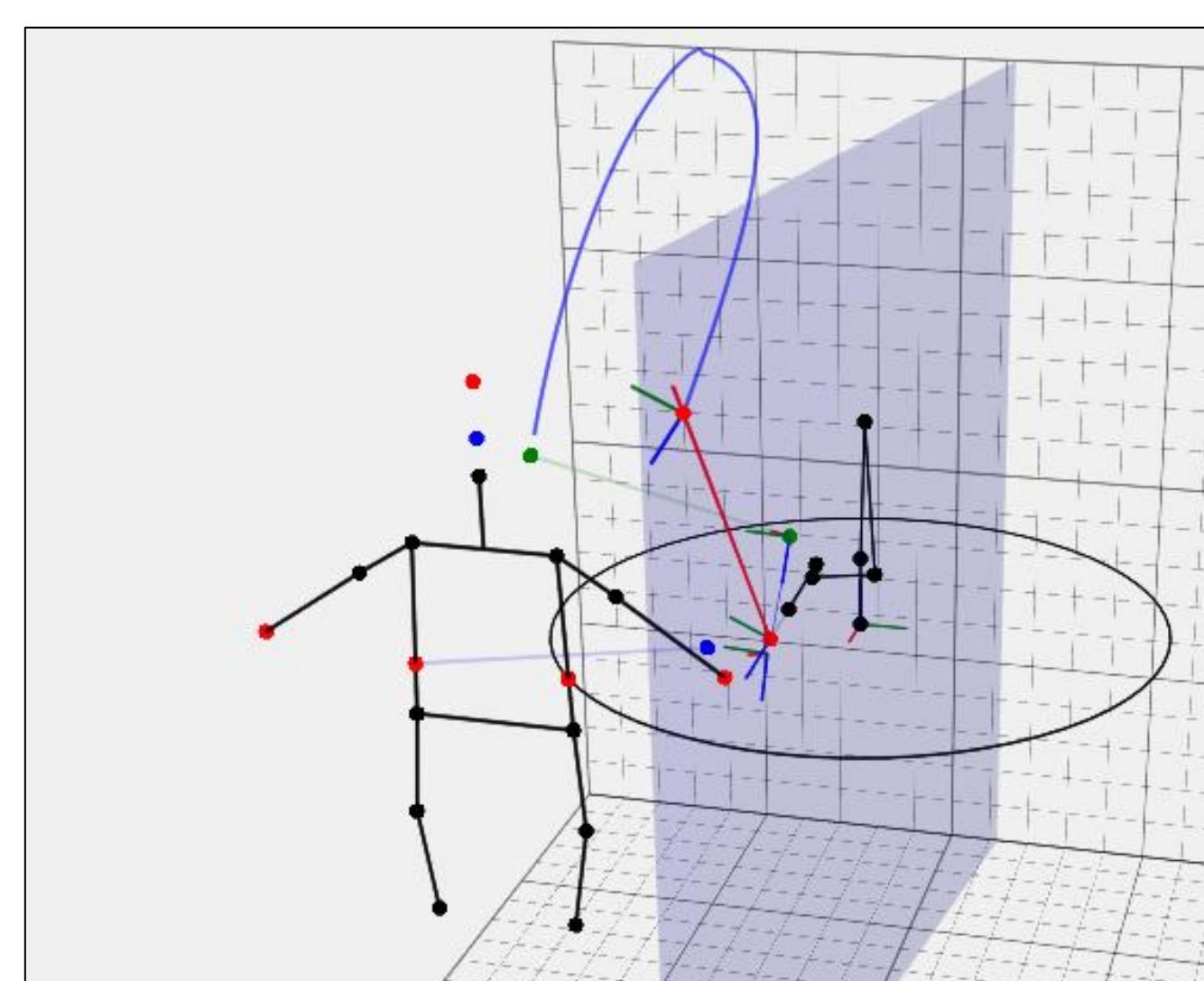
歷來理論部課主題

矩陣微分



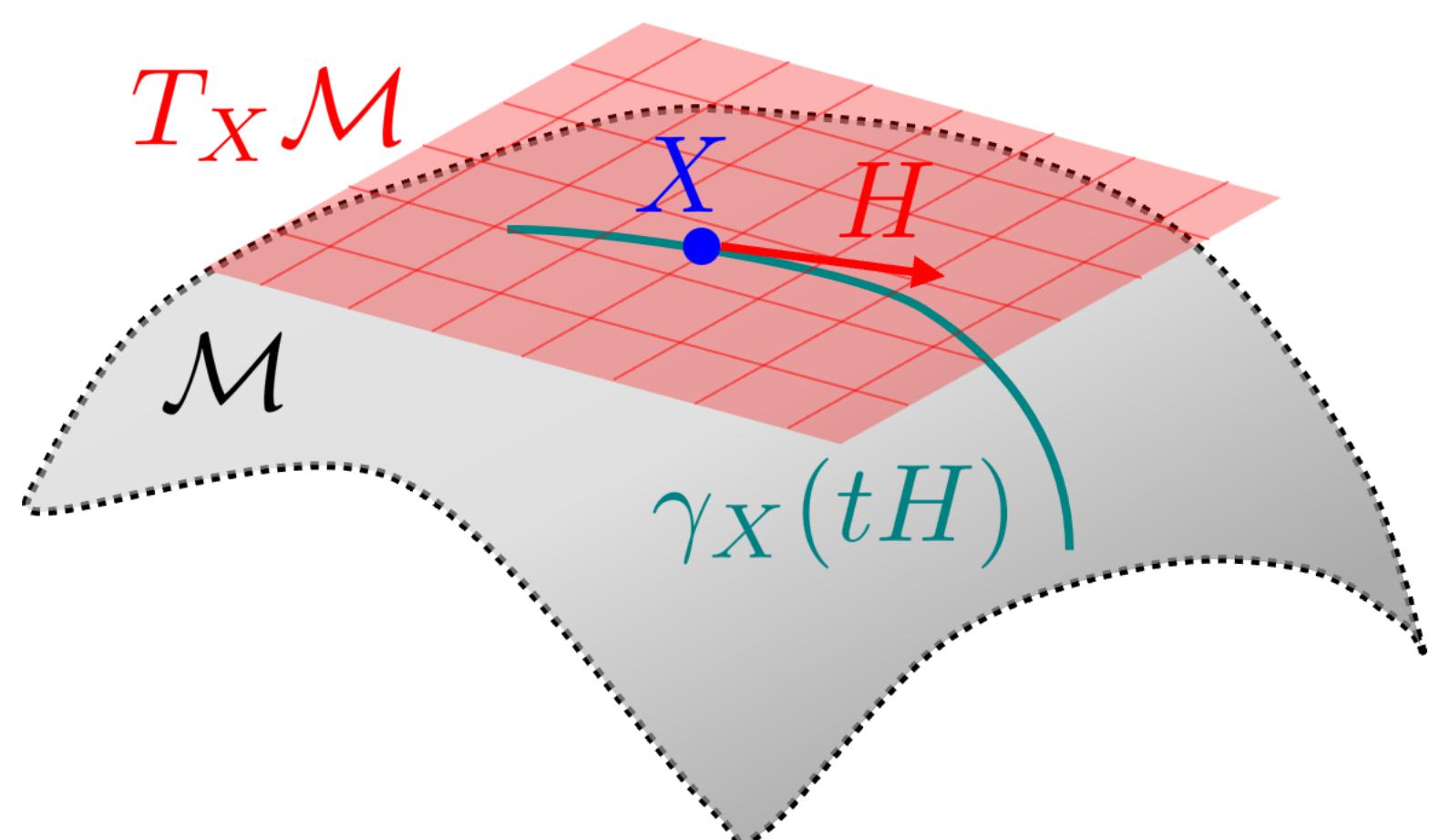
$$\frac{\partial^n f}{\partial X^n}[H] = \left. \frac{d^n}{dt^n} f(X + tH) \right|_{t=0}$$

四元數



$$\begin{aligned}\mathbb{H} &= \text{span}\{1, i, j, k\} \\ p' &= e^{\hat{n}\theta/2} p e^{-\hat{n}\theta/2}\end{aligned}$$

流形最佳化



$$X_{t+1} = X_t - \mu \cdot \text{grad}f(X_t)$$

$$\frac{\partial f}{\partial X}[H] = \langle \text{grad}f(X), H \rangle_{T_X \mathcal{M}}$$

傅立葉轉換

$$\begin{aligned}s &= 5v_1 - \sqrt{2}v_2 \\ &\quad + v_3 - \sqrt{2}v_4\end{aligned}$$

$$L = D - A = V \Lambda V^H$$

Graph Laplacian

$$= \sum_i \lambda_i v_i v_i^H$$