

**Supplementary Problem.** Prove the recursive formula for partial correlations: for any  $i, j \in V$ ,  $i \neq j$ ,  $K \subset V \setminus \{i, j\}$ , and  $h \in K$ ,

$$\rho_{i,j|K} = \frac{\rho_{i,j|K \setminus \{h\}} - \rho_{i,h|K \setminus \{h\}} \rho_{j,h|K \setminus \{h\}}}{\sqrt{(1 - \rho_{i,h|K \setminus \{h\}}^2)(1 - \rho_{j,h|K \setminus \{h\}}^2)}}.$$