

Autorouting with deep learning

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Problem statement: On a ($w = 5, l = 5$) board, there are $n = 30$ components. The width w and length l of these components follows a Gaussian distribution of $N(\mu = 0.5, \sigma^2 = 0.5)$ independently. All pads/holes are even spaced and aligned at the two sides of these components, as DIP. The number of pads for one component follows a Poisson distribution with $P(\lambda = 6)$ per unit length of the component perimeter (You can remove zero and single pad samples). The netlist is formed by a partition among all the pads. With fixed number of partitions k , probability for each partition $\pi = (\pi_1, \dots, \pi_K)$ is sampled from the Dirichlet distribution with parameter $(\theta_1, \dots, \theta_k)$. Then each pad takes values in $(1, \dots, k)$ with probability π . This is the Dirichlet-multinomial random partition generation.

Layout the route: Your task is to build a model to route the netlist by restrictions, such as no route should be crossed. You can have multiple layer PCB board and vias.