SIFT Question

Why does SIFT use points that are extrema with respect to 26 neighbours?

Because they are invariant to translation, rotation, illumination and scale transformations:

- **Translation:** if the image translates, then all the DoG values also translate equally, maintaining the extrema

- **Rotation:** if the image rotates, then all the DoG values also rotate equally, maintaining the extrema

- **Illumination:** if the image gets brighter, the DoG values all increase relatively, so the extrema remains

- **Scale:** if the image gets larger, then the same relative values of DoG will be calculated, but for a larger value of σ, so the extrema remains