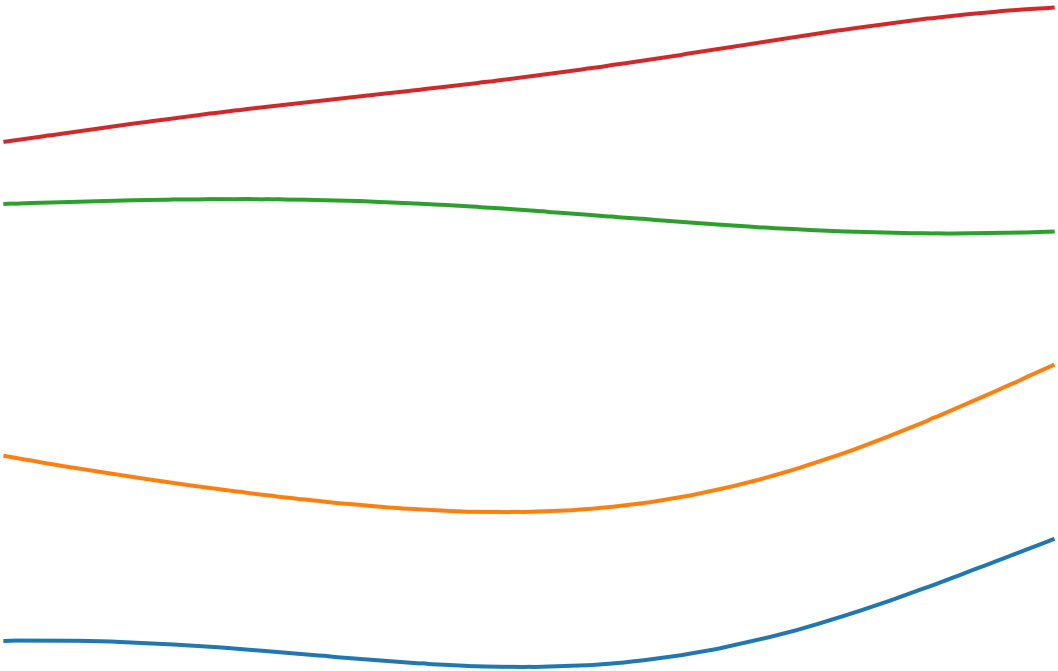medse_kernel