In [1]:
```
import tensorflow as tf
import numpy as np
import pandas as pd
import plotly.graph_objects as go
from plotly.subplots import make_subplots
```

modules

In [2]:
```
def encoder_embedder(timesteps, features, hidden_dim, num_layers):
    '''
    Encoder embedder, takes as input the actual sequences and returns the actual em
    '''
    x = tf.keras.layers.Input(shape=(timesteps, features))
    for _ in range(num_layers):
        e = tf.keras.layers.GRU(units=hidden_dim, return_sequences=True)(x if _ ==
    return tf.keras.models.Model(x, e, name='encoder_embedder')


def encoder(timesteps, hidden_dim, num_layers):
    '''
    Encoder, takes as input the actual embeddings and returns the actual latent vec
    '''
    e = tf.keras.layers.Input(shape=(timesteps, hidden_dim))
    for _ in range(num_layers):
        h = tf.keras.layers.GRU(units=hidden_dim, return_sequences=True)(e if _ ==
    h = tf.keras.layers.Dense(units=hidden_dim)(h)
    return tf.keras.models.Model(e, h, name='encoder')


def decoder(timesteps, features, hidden_dim, num_layers):
    '''
    Decoder, takes as input the actual or synthetic latent vector and returns the r
    '''
    h = tf.keras.layers.Input(shape=(timesteps, hidden_dim))
    for _ in range(num_layers):
        y = tf.keras.layers.TimeDistributed(tf.keras.layers.Dense(units=hidden_dim,
    y = tf.keras.layers.Dense(units=features)(y)
    return tf.keras.models.Model(h, y, name='decoder')


def generator_embedder(timesteps, features, hidden_dim, num_layers):
    '''
    Generator embedder, takes as input the synthetic sequences and returns the synt
    '''
    z = tf.keras.layers.Input(shape=(timesteps, features))
    for _ in range(num_layers):
        e = tf.keras.layers.GRU(units=hidden_dim, return_sequences=True)(z if _ ==
    return tf.keras.models.Model(z, e, name='generator_embedder')


def generator(timesteps, hidden_dim, num_layers):
    '''
    Generator, takes as input the synthetic embeddings and returns the synthetic la
    '''
```

```
    e = tf.keras.layers.Input(shape=(timesteps, hidden_dim))
    for _ in range(num_layers):
        h = tf.keras.layers.GRU(units=hidden_dim, return_sequences=True)(e if _ ==
    h = tf.keras.layers.Dense(units=hidden_dim)(h)
    return tf.keras.models.Model(e, h, name='generator')


def discriminator(timesteps, hidden_dim, num_layers):
    '''
    Discriminator, takes as input the actual or synthetic embedding or latent vecto
    '''
    h = tf.keras.layers.Input(shape=(timesteps, hidden_dim))
    for _ in range(num_layers):
        p = tf.keras.layers.Bidirectional(tf.keras.layers.GRU(units=hidden_dim, ret
    p = tf.keras.layers.Dense(units=1)(p)
    return tf.keras.models.Model(h, p, name='discriminator')


def simulator(samples, timesteps, features):
    '''
    Simulator, generates synthetic sequences from a Wiener process.
    '''
    z = tf.random.normal(mean=0, stddev=1, shape=(samples * timesteps, features), d
    z = tf.cumsum(z, axis=0) / tf.sqrt(tf.cast(samples * timesteps, dtype=tf.float3
    z = (z - tf.reduce_mean(z, axis=0)) / tf.math.reduce_std(z, axis=0)
    z = tf.reshape(z, (samples, timesteps, features))
    return z
```

In [3]:
```
def time_series_to_sequences(time_series, timesteps):
    '''
    Reshape the time series as sequences.
    '''

    sequences = np.array([time_series[t - timesteps: t] for t in range(timesteps, l
    return sequences


def sequences_to_time_series(sequences):
    '''
    Reshape the sequences as time series.
    '''
    time_series = np.concatenate([sequence for sequence in sequences], axis=0)
    return time_series
```

losses

In [60]:
```
@tf.function
def mean_squared_error(y_true, y_pred):
    '''
    Mean squared error, used for calculating the supervised loss and the reconstruc
    '''
    loss = tf.keras.losses.MSE(y_true=tf.expand_dims(y_true, axis=-1), y_pred=tf.ex
    return tf.reduce_mean(tf.reduce_sum(loss, axis=-1))
```

```
@tf.function
def binary_crossentropy(y_true, y_pred):
    '''
    Binary cross-entropy, used for calculating the unsupervised loss.
    '''
    loss = tf.keras.losses.binary_crossentropy(y_true=y_true, y_pred=y_pred, from_l
    return tf.reduce_mean(loss)
```

model implementation

In [5]:

```
class TimeGAN():
    def __init__(self,
                 x,
                 timesteps,
                 hidden_dim,
                 num_layers,
                 lambda_param,
                 eta_param,
                 learning_rate,
                 batch_size):
        '''
        Implementation of synthetic time series generation model introduced in Yoon
        Time-series generative adversarial networks. Advances in neural information
        '''

        # extract the length of the time series
        samples = x.shape[0]

        # extract the number of time series
        features = x.shape[1]

        # scale the time series
        mu = np.mean(x, axis=0)
        sigma = np.std(x, axis=0)
        x = (x - mu) / sigma

        # reshape the time series as sequences
        x = time_series_to_sequences(time_series=x, timesteps=timesteps)

        # create the dataset
        dataset = tf.data.Dataset.from_tensor_slices(x)
        dataset = dataset.cache().shuffle(samples).batch(batch_size).prefetch(tf.da

        # build the models
        autoencoder_model = tf.keras.models.Sequential([
            encoder_embedder(timesteps=timesteps, features=features, hidden_dim=hid
            encoder(timesteps=timesteps, hidden_dim=hidden_dim, num_layers=num_laye
            decoder(timesteps=timesteps, features=features, hidden_dim=hidden_dim,
        ])

        generator_model = tf.keras.models.Sequential([
            generator_embedder(timesteps=timesteps, features=features, hidden_dim=h
            generator(timesteps=timesteps, hidden_dim=hidden_dim, num_layers=num_la
        ])
```

```
        discriminator_model = discriminator(timesteps=timesteps, hidden_dim=hidden_

        # instantiate the optimizers
        autoencoder_optimizer = tf.keras.optimizers.Adam(learning_rate=learning_rat
        generator_optimizer = tf.keras.optimizers.Adam(learning_rate=learning_rate)
        discriminator_optimizer = tf.keras.optimizers.Adam(learning_rate=learning_r

        # save the objects
        self.mu = mu
        self.sigma = sigma
        self.samples = samples
        self.timesteps = timesteps
        self.features = features
        self.lambda_param = lambda_param
        self.eta_param = eta_param
        self.dataset = dataset
        self.autoencoder_model = autoencoder_model
        self.generator_model = generator_model
        self.discriminator_model = discriminator_model
        self.autoencoder_optimizer = autoencoder_optimizer
        self.generator_optimizer = generator_optimizer
        self.discriminator_optimizer = discriminator_optimizer

    def fit(self, epochs, verbose=True):
        '''
        Train the model.
        '''

        # define the training loop
        @tf.function
        def train_step(data):
            with tf.GradientTape() as autoencoder_tape, tf.GradientTape() as genera

                # get the actual sequences
                x = tf.cast(data, dtype=tf.float32)

                # generate the synthetic sequences
                z = simulator(samples=x.shape[0], timesteps=self.timesteps, feature

                # get the encoder outputs
                ex = self.autoencoder_model.get_layer('encoder_embedder')(x)     #
                hx = self.autoencoder_model.get_layer('encoder')(ex)             #

                # get the generator outputs
                ez = self.generator_model.get_layer('generator_embedder')(z)     #
                hz = self.generator_model.get_layer('generator')(ez)             #
                hx_hat = self.generator_model.get_layer('generator')(ex)         #

                # get the decoder outputs
                x_hat = self.autoencoder_model.get_layer('decoder')(hx)          #

                # get the discriminator outputs
                p_ex = self.discriminator_model(ex)                              #
                p_ez = self.discriminator_model(ez)                              #
                p_hx = self.discriminator_model(hx)                              #
                p_hz = self.discriminator_model(hz)                              #
```

```
                # calculate the supervised loss
                supervised_loss = mean_squared_error(hx[:, 1:, :], hx_hat[:, :-1, :

                # calculate the autoencoder loss
                autoencoder_loss = mean_squared_error(x, x_hat) + \
                                   self.lambda_param * supervised_loss

                # calculate the generator loss
                generator_loss = binary_crossentropy(tf.ones_like(p_hz), p_hz) + \
                                 binary_crossentropy(tf.ones_like(p_ez), p_ez) + \
                                 self.eta_param * supervised_loss

                # calculate the discriminator loss
                discriminator_loss = binary_crossentropy(tf.zeros_like(p_hz), p_hz)
                                     binary_crossentropy(tf.zeros_like(p_ez), p_ez)
                                     binary_crossentropy(tf.ones_like(p_hx), p_hx)
                                     binary_crossentropy(tf.ones_like(p_ex), p_ex)

            # calculate the gradients
            autoencoder_gradient = autoencoder_tape.gradient(autoencoder_loss, self
            generator_gradient = generator_tape.gradient(generator_loss, self.gener
            discriminator_gradient = discriminator_tape.gradient(discriminator_loss

            # update the weights
            self.autoencoder_optimizer.apply_gradients(zip(autoencoder_gradient, se
            self.generator_optimizer.apply_gradients(zip(generator_gradient, self.g
            self.discriminator_optimizer.apply_gradients(zip(discriminator_gradient

            return autoencoder_loss, generator_loss, discriminator_loss

        # train the model
        for epoch in range(epochs):
            for data in self.dataset:
                autoencoder_loss, generator_loss, discriminator_loss = train_step(d
            if verbose:
                print(
                    f'epoch: {1 + epoch} '
                    f'autoencoder_loss: {format(autoencoder_loss.numpy(), ".6f")} '
                    f'generator_loss: {format(generator_loss.numpy(), ".6f")} '
                    f'discriminator_loss: {format(discriminator_loss.numpy(), ".6f"
                )

    def reconstruct(self, x):
        '''
        Reconstruct the time series.
        '''

        # scale the time series
        x = (x - self.mu) / self.sigma

        # reshape the time series as sequences
        x = time_series_to_sequences(time_series=x, timesteps=self.timesteps)

        # get the reconstructed sequences
        x_hat = self.autoencoder_model(x)
```

```
        # transform the reconstructed sequences back to time series
        x_hat = sequences_to_time_series(x_hat.numpy())

        # transform the reconstructed time series back to the original scale
        x_hat = self.mu + self.sigma * x_hat

        return x_hat

    def simulate(self, samples):
        '''
        Simulate the time series.
        '''

        # generate the synthetic sequences
        z = simulator(samples=samples // self.timesteps, timesteps=self.timesteps,

        # get the simulated sequences
        x_sim = self.autoencoder_model.get_layer('decoder')(self.generator_model(z)

        # transform the simulated sequences back to time series
        x_sim = sequences_to_time_series(x_sim.numpy())

        # transform the simulated time series back to the original scale
        x_sim = self.mu + self.sigma * x_sim

        return x_sim
```

plot model

In [6]:

```
def plot(actual, reconstructed, synthetic):
    '''
    Plot the actual, reconstructed and synthetic time series.
    '''

    fig = make_subplots(
        subplot_titles=['Actual', 'Reconstructed', 'Synthetic'],
        vertical_spacing=0.15,
        rows=3,
        cols=1
    )

    fig.update_layout(
        plot_bgcolor='white',
        paper_bgcolor='white',
        margin=dict(t=60, b=60, l=30, r=30),
        font=dict(
            color='#1b1f24',
            size=8,
        ),
        legend=dict(
            traceorder='normal',
            font=dict(
                color='#1b1f24',
                size=10,
```

```
            ),
            x=0,
            y=-0.1,
            orientation='h'
        ),
    )

    fig.update_annotations(
        font=dict(
            color='#1b1f24',
            size=12,
        )
    )

    # plot the actual time series
    for i in range(actual.shape[1]):
        fig.add_trace(
            go.Scatter(
                y=actual[:, i],
                showlegend=False,
                mode='lines',
                line=dict(
                    color='rgba(175,184,193,0.2)',
                    width=0.5
                )
            ),
            row=1,
            col=1
        )

    fig.add_trace(
        go.Scatter(
            y=np.mean(actual, axis=1),
            name='Actual Avg.',
            showlegend=True,
            mode='lines',
            line=dict(
                color='#0969da',
                width=1,
                shape='spline',
            )
        ),
        row=1,
        col=1
    )

    # plot the reconstructed time series
    for i in range(reconstructed.shape[1]):
        fig.add_trace(
            go.Scatter(
                y=reconstructed[:, i],
                showlegend=False,
                mode='lines',
                line=dict(
                    color='rgba(175,184,193,0.2)',
                    width=0.5
```

```
            )
        ),
        row=2,
        col=1
    )

fig.add_trace(
    go.Scatter(
        y=np.mean(reconstructed, axis=1),
        name='Reconstructed Avg.',
        showlegend=True,
        mode='lines',
        line=dict(
            color='#0969da',
            width=1,
            shape='spline',
            dash='dash',
        )
    ),
    row=2,
    col=1
)

# plot the synthetic time series
for i in range(synthetic.shape[1]):
    fig.add_trace(
        go.Scatter(
            y=synthetic[:, i],
            showlegend=False,
            mode='lines',
            line=dict(
                color='rgba(175,184,193,0.2)',
                width=0.5
            )
        ),
        row=3,
        col=1
    )

fig.add_trace(
    go.Scatter(
        y=np.mean(synthetic, axis=1),
        name='Synthetic Avg.',
        showlegend=True,
        mode='lines',
        line=dict(
            color='#0969da',
            width=1,
            shape='spline',
            dash='dot',
        )
    ),
    row=3,
    col=1
)
```

```
    for i in [1, 2, 3]:
        fig.update_xaxes(
            title='Time',
            color='#424a53',
            tickfont=dict(
                color='#6e7781',
                size=6,
            ),
            linecolor='#eaeef2',
            mirror=True,
            showgrid=False,
            row=i,
            col=1
        )

        fig.update_yaxes(
            range=[0.9 * np.min(actual), 1.1 * np.max(actual)],
            title='Value',
            color='#424a53',
            tickfont=dict(
                color='#6e7781',
                size=6,
            ),
            linecolor='#eaeef2',
            mirror=True,
            showgrid=False,
            zeroline=False,
            row=i,
            col=1
        )

    return fig
```

In [24]:
```
from sklearn.preprocessing import MinMaxScaler
scaler = MinMaxScaler()
```

In [67]:
```
data = pd.read_excel("maindata.xlsx")


data = data.astype(np.float64)

data = scaler.fit_transform(data)

data = data[:-8]


# Split data into training and testing sets
x_train = data[:234]
x_test = data[234:]

# Fit the model to the training data
model = TimeGAN(
    x=x_train,
    timesteps=18,
    hidden_dim=64,
```

```
    num_layers=3,
    lambda_param=0.1,
    eta_param=10,
    learning_rate=0.001,
    batch_size=16
)

model.fit(
    epochs=2000,
    verbose=True
)

# Reconstruct the test data
x_hat = model.reconstruct(x=x_test)

# Generate the synthetic data
x_sim = model.simulate(samples=len(x_test))

# Plot the actual, reconstructed and synthetic data
fig = plot(actual=x_test, reconstructed=x_hat, synthetic=x_sim)
# fig.write_image('results.png', scale=4, height=900, width=700)
fig.show()
```

```
epoch: 1 autoencoder_loss: 18.321800 generator_loss: 22.621742 discriminator_loss:
2.785777
epoch: 2 autoencoder_loss: 17.865599 generator_loss: 17.195457 discriminator_loss:
2.753920
epoch: 3 autoencoder_loss: 17.514521 generator_loss: 14.935451 discriminator_loss:
2.710884
epoch: 4 autoencoder_loss: 17.172216 generator_loss: 14.836706 discriminator_loss:
2.680139
epoch: 5 autoencoder_loss: 16.796722 generator_loss: 16.190586 discriminator_loss:
2.653770
epoch: 6 autoencoder_loss: 16.389910 generator_loss: 18.849909 discriminator_loss:
2.621807
epoch: 7 autoencoder_loss: 15.958915 generator_loss: 22.632713 discriminator_loss:
2.546427
epoch: 8 autoencoder_loss: 15.518735 generator_loss: 27.005619 discriminator_loss:
2.543513
epoch: 9 autoencoder_loss: 15.058032 generator_loss: 31.560852 discriminator_loss:
2.459703
epoch: 10 autoencoder_loss: 14.558754 generator_loss: 35.513809 discriminator_loss:
2.404084
epoch: 11 autoencoder_loss: 14.017208 generator_loss: 38.664059 discriminator_loss:
2.289785
epoch: 12 autoencoder_loss: 13.453613 generator_loss: 41.091381 discriminator_loss:
2.204406
epoch: 13 autoencoder_loss: 12.903264 generator_loss: 42.878536 discriminator_loss:
2.195322
epoch: 14 autoencoder_loss: 12.392501 generator_loss: 44.668171 discriminator_loss:
1.991075
epoch: 15 autoencoder_loss: 11.918991 generator_loss: 46.001945 discriminator_loss:
1.796900
epoch: 16 autoencoder_loss: 11.486183 generator_loss: 46.607353 discriminator_loss:
1.667117
epoch: 17 autoencoder_loss: 11.094816 generator_loss: 46.183544 discriminator_loss:
1.453525
epoch: 18 autoencoder_loss: 10.741859 generator_loss: 44.333672 discriminator_loss:
1.331819
epoch: 19 autoencoder_loss: 10.410049 generator_loss: 41.690094 discriminator_loss:
1.159134
epoch: 20 autoencoder_loss: 10.082613 generator_loss: 38.428226 discriminator_loss:
1.098794
epoch: 21 autoencoder_loss: 9.760085 generator_loss: 35.836857 discriminator_loss:
1.003283
epoch: 22 autoencoder_loss: 9.447267 generator_loss: 33.136326 discriminator_loss:
0.923950
epoch: 23 autoencoder_loss: 9.143317 generator_loss: 31.160143 discriminator_loss:
0.825007
epoch: 24 autoencoder_loss: 8.851927 generator_loss: 29.960583 discriminator_loss:
0.781667
epoch: 25 autoencoder_loss: 8.575217 generator_loss: 28.583929 discriminator_loss:
0.674893
epoch: 26 autoencoder_loss: 8.314788 generator_loss: 26.679382 discriminator_loss:
0.881342
epoch: 27 autoencoder_loss: 8.069951 generator_loss: 26.630943 discriminator_loss:
0.789510
epoch: 28 autoencoder_loss: 7.836635 generator_loss: 24.908413 discriminator_loss:
0.616175
```

```
epoch: 29 autoencoder_loss: 7.615119 generator_loss: 24.899014 discriminator_loss:
0.818529
epoch: 30 autoencoder_loss: 7.409312 generator_loss: 24.825405 discriminator_loss:
0.568721
epoch: 31 autoencoder_loss: 7.206030 generator_loss: 25.377491 discriminator_loss:
0.658099
epoch: 32 autoencoder_loss: 7.004601 generator_loss: 22.975674 discriminator_loss:
1.293226
epoch: 33 autoencoder_loss: 6.806198 generator_loss: 24.316013 discriminator_loss:
0.544692
epoch: 34 autoencoder_loss: 6.612989 generator_loss: 24.994415 discriminator_loss:
0.393044
epoch: 35 autoencoder_loss: 6.428504 generator_loss: 22.815968 discriminator_loss:
0.596433
epoch: 36 autoencoder_loss: 6.255027 generator_loss: 25.026741 discriminator_loss:
0.728911
epoch: 37 autoencoder_loss: 6.087835 generator_loss: 23.732113 discriminator_loss:
0.597163
epoch: 38 autoencoder_loss: 5.923963 generator_loss: 25.342991 discriminator_loss:
0.834148
epoch: 39 autoencoder_loss: 5.766531 generator_loss: 25.685097 discriminator_loss:
0.386667
epoch: 40 autoencoder_loss: 5.610824 generator_loss: 25.493357 discriminator_loss:
0.623674
epoch: 41 autoencoder_loss: 5.453348 generator_loss: 25.700121 discriminator_loss:
0.669229
epoch: 42 autoencoder_loss: 5.298510 generator_loss: 26.087891 discriminator_loss:
0.404030
epoch: 43 autoencoder_loss: 5.148450 generator_loss: 25.919609 discriminator_loss:
0.373949
epoch: 44 autoencoder_loss: 5.006526 generator_loss: 24.791233 discriminator_loss:
1.007332
epoch: 45 autoencoder_loss: 4.873085 generator_loss: 24.464634 discriminator_loss:
0.709568
epoch: 46 autoencoder_loss: 4.748811 generator_loss: 22.277584 discriminator_loss:
1.486379
epoch: 47 autoencoder_loss: 4.630718 generator_loss: 26.956726 discriminator_loss:
0.884116
epoch: 48 autoencoder_loss: 4.520401 generator_loss: 19.961460 discriminator_loss:
1.327358
epoch: 49 autoencoder_loss: 4.416716 generator_loss: 23.172724 discriminator_loss:
0.975255
epoch: 50 autoencoder_loss: 4.316781 generator_loss: 22.215866 discriminator_loss:
0.945829
epoch: 51 autoencoder_loss: 4.219797 generator_loss: 22.675926 discriminator_loss:
0.593009
epoch: 52 autoencoder_loss: 4.127271 generator_loss: 21.985836 discriminator_loss:
0.882109
epoch: 53 autoencoder_loss: 4.037181 generator_loss: 25.567806 discriminator_loss:
0.459845
epoch: 54 autoencoder_loss: 3.947262 generator_loss: 25.606575 discriminator_loss:
0.276060
epoch: 55 autoencoder_loss: 3.858634 generator_loss: 21.168461 discriminator_loss:
0.526524
epoch: 56 autoencoder_loss: 3.773812 generator_loss: 20.411972 discriminator_loss:
0.654894
```

```
epoch: 57 autoencoder_loss: 3.692174 generator_loss: 19.575762 discriminator_loss:
1.304554
epoch: 58 autoencoder_loss: 3.614799 generator_loss: 19.879757 discriminator_loss:
1.047810
epoch: 59 autoencoder_loss: 3.540220 generator_loss: 21.622803 discriminator_loss:
0.554722
epoch: 60 autoencoder_loss: 3.469434 generator_loss: 20.897982 discriminator_loss:
1.193887
epoch: 61 autoencoder_loss: 3.401676 generator_loss: 18.826509 discriminator_loss:
2.242517
epoch: 62 autoencoder_loss: 3.336748 generator_loss: 23.660179 discriminator_loss:
0.741888
epoch: 63 autoencoder_loss: 3.275332 generator_loss: 21.697065 discriminator_loss:
1.541744
epoch: 64 autoencoder_loss: 3.215597 generator_loss: 19.101219 discriminator_loss:
1.853569
epoch: 65 autoencoder_loss: 3.157797 generator_loss: 21.859921 discriminator_loss:
0.926816
epoch: 66 autoencoder_loss: 3.100954 generator_loss: 17.203712 discriminator_loss:
1.534283
epoch: 67 autoencoder_loss: 3.045102 generator_loss: 22.195423 discriminator_loss:
0.640027
epoch: 68 autoencoder_loss: 2.990034 generator_loss: 18.482605 discriminator_loss:
0.777300
epoch: 69 autoencoder_loss: 2.935988 generator_loss: 19.904850 discriminator_loss:
0.675802
epoch: 70 autoencoder_loss: 2.883565 generator_loss: 17.236111 discriminator_loss:
1.211049
epoch: 71 autoencoder_loss: 2.831986 generator_loss: 16.505072 discriminator_loss:
1.370573
epoch: 72 autoencoder_loss: 2.781261 generator_loss: 19.243061 discriminator_loss:
0.822406
epoch: 73 autoencoder_loss: 2.731209 generator_loss: 21.929337 discriminator_loss:
0.702911
epoch: 74 autoencoder_loss: 2.681665 generator_loss: 20.965885 discriminator_loss:
0.853487
epoch: 75 autoencoder_loss: 2.632783 generator_loss: 21.677216 discriminator_loss:
0.787806
epoch: 76 autoencoder_loss: 2.583832 generator_loss: 18.319881 discriminator_loss:
1.901151
epoch: 77 autoencoder_loss: 2.534529 generator_loss: 19.337214 discriminator_loss:
1.013645
epoch: 78 autoencoder_loss: 2.485749 generator_loss: 19.954872 discriminator_loss:
1.044613
epoch: 79 autoencoder_loss: 2.437605 generator_loss: 19.117443 discriminator_loss:
1.471155
epoch: 80 autoencoder_loss: 2.389596 generator_loss: 21.201174 discriminator_loss:
0.864331
epoch: 81 autoencoder_loss: 2.341866 generator_loss: 23.138363 discriminator_loss:
0.510066
epoch: 82 autoencoder_loss: 2.294122 generator_loss: 18.644352 discriminator_loss:
1.329746
epoch: 83 autoencoder_loss: 2.246741 generator_loss: 19.034769 discriminator_loss:
0.704450
epoch: 84 autoencoder_loss: 2.199770 generator_loss: 18.154606 discriminator_loss:
0.826439
```

```
epoch: 85 autoencoder_loss: 2.152988 generator_loss: 17.477016 discriminator_loss:
1.555091
epoch: 86 autoencoder_loss: 2.106785 generator_loss: 18.834772 discriminator_loss:
1.935119
epoch: 87 autoencoder_loss: 2.061063 generator_loss: 17.884926 discriminator_loss:
1.157616
epoch: 88 autoencoder_loss: 2.016758 generator_loss: 20.054520 discriminator_loss:
1.104414
epoch: 89 autoencoder_loss: 1.973470 generator_loss: 20.695738 discriminator_loss:
1.189952
epoch: 90 autoencoder_loss: 1.931556 generator_loss: 20.506094 discriminator_loss:
1.329971
epoch: 91 autoencoder_loss: 1.890466 generator_loss: 20.753811 discriminator_loss:
1.020544
epoch: 92 autoencoder_loss: 1.850318 generator_loss: 19.755772 discriminator_loss:
0.770995
epoch: 93 autoencoder_loss: 1.810691 generator_loss: 20.237865 discriminator_loss:
0.603139
epoch: 94 autoencoder_loss: 1.771950 generator_loss: 19.646103 discriminator_loss:
0.667361
epoch: 95 autoencoder_loss: 1.732851 generator_loss: 20.312298 discriminator_loss:
1.025489
epoch: 96 autoencoder_loss: 1.694377 generator_loss: 18.828491 discriminator_loss:
1.423489
epoch: 97 autoencoder_loss: 1.655847 generator_loss: 20.458664 discriminator_loss:
0.521441
epoch: 98 autoencoder_loss: 1.617797 generator_loss: 19.186672 discriminator_loss:
0.839603
epoch: 99 autoencoder_loss: 1.580208 generator_loss: 17.495958 discriminator_loss:
1.162572
epoch: 100 autoencoder_loss: 1.544194 generator_loss: 19.743023 discriminator_loss:
1.175797
epoch: 101 autoencoder_loss: 1.508699 generator_loss: 20.391628 discriminator_loss:
1.064565
epoch: 102 autoencoder_loss: 1.474117 generator_loss: 21.266232 discriminator_loss:
0.915064
epoch: 103 autoencoder_loss: 1.440861 generator_loss: 20.231003 discriminator_loss:
0.875608
epoch: 104 autoencoder_loss: 1.408549 generator_loss: 18.913776 discriminator_loss:
1.066744
epoch: 105 autoencoder_loss: 1.376741 generator_loss: 18.448372 discriminator_loss:
1.159301
epoch: 106 autoencoder_loss: 1.345101 generator_loss: 19.911404 discriminator_loss:
1.096871
epoch: 107 autoencoder_loss: 1.313689 generator_loss: 18.884109 discriminator_loss:
0.869770
epoch: 108 autoencoder_loss: 1.283216 generator_loss: 18.402710 discriminator_loss:
0.850053
epoch: 109 autoencoder_loss: 1.253841 generator_loss: 17.379045 discriminator_loss:
1.352432
epoch: 110 autoencoder_loss: 1.225302 generator_loss: 17.852283 discriminator_loss:
0.806576
epoch: 111 autoencoder_loss: 1.197453 generator_loss: 18.054489 discriminator_loss:
1.147754
epoch: 112 autoencoder_loss: 1.170323 generator_loss: 15.859804 discriminator_loss:
1.799389
```

```
epoch: 113 autoencoder_loss: 1.143785 generator_loss: 16.360825 discriminator_loss:
1.506789
epoch: 114 autoencoder_loss: 1.118214 generator_loss: 18.602207 discriminator_loss:
1.454264
epoch: 115 autoencoder_loss: 1.093359 generator_loss: 17.298914 discriminator_loss:
1.048120
epoch: 116 autoencoder_loss: 1.069337 generator_loss: 19.395004 discriminator_loss:
1.034143
epoch: 117 autoencoder_loss: 1.046048 generator_loss: 17.289688 discriminator_loss:
1.017050
epoch: 118 autoencoder_loss: 1.023565 generator_loss: 18.574230 discriminator_loss:
0.839420
epoch: 119 autoencoder_loss: 1.002250 generator_loss: 19.474487 discriminator_loss:
0.863568
epoch: 120 autoencoder_loss: 0.981555 generator_loss: 17.123640 discriminator_loss:
0.873399
epoch: 121 autoencoder_loss: 0.961822 generator_loss: 15.519428 discriminator_loss:
1.352454
epoch: 122 autoencoder_loss: 0.942907 generator_loss: 16.464272 discriminator_loss:
0.854703
epoch: 123 autoencoder_loss: 0.924390 generator_loss: 16.293077 discriminator_loss:
0.791980
epoch: 124 autoencoder_loss: 0.906437 generator_loss: 15.196010 discriminator_loss:
1.138265
epoch: 125 autoencoder_loss: 0.888975 generator_loss: 15.248196 discriminator_loss:
0.959123
epoch: 126 autoencoder_loss: 0.872008 generator_loss: 16.067867 discriminator_loss:
0.832931
epoch: 127 autoencoder_loss: 0.855781 generator_loss: 14.704863 discriminator_loss:
1.294816
epoch: 128 autoencoder_loss: 0.840330 generator_loss: 14.298493 discriminator_loss:
0.992565
epoch: 129 autoencoder_loss: 0.825572 generator_loss: 16.076368 discriminator_loss:
0.639430
epoch: 130 autoencoder_loss: 0.811515 generator_loss: 15.875898 discriminator_loss:
0.861019
epoch: 131 autoencoder_loss: 0.797912 generator_loss: 15.527155 discriminator_loss:
0.987161
epoch: 132 autoencoder_loss: 0.784861 generator_loss: 16.016605 discriminator_loss:
0.846666
epoch: 133 autoencoder_loss: 0.772380 generator_loss: 16.205015 discriminator_loss:
0.813156
epoch: 134 autoencoder_loss: 0.759966 generator_loss: 15.764423 discriminator_loss:
0.659786
epoch: 135 autoencoder_loss: 0.748012 generator_loss: 16.188591 discriminator_loss:
0.826884
epoch: 136 autoencoder_loss: 0.736486 generator_loss: 14.832971 discriminator_loss:
0.558928
epoch: 137 autoencoder_loss: 0.725378 generator_loss: 15.808515 discriminator_loss:
0.999581
epoch: 138 autoencoder_loss: 0.714379 generator_loss: 14.672617 discriminator_loss:
0.879030
epoch: 139 autoencoder_loss: 0.703777 generator_loss: 15.071928 discriminator_loss:
0.566573
epoch: 140 autoencoder_loss: 0.694370 generator_loss: 14.763499 discriminator_loss:
0.652839
```

```
epoch: 141 autoencoder_loss: 0.686948 generator_loss: 14.282158 discriminator_loss:
0.584787
epoch: 142 autoencoder_loss: 0.682892 generator_loss: 14.428431 discriminator_loss:
0.696006
epoch: 143 autoencoder_loss: 0.679576 generator_loss: 14.126152 discriminator_loss:
0.625955
epoch: 144 autoencoder_loss: 0.666853 generator_loss: 13.655931 discriminator_loss:
1.108093
epoch: 145 autoencoder_loss: 0.646678 generator_loss: 14.298338 discriminator_loss:
0.838268
epoch: 146 autoencoder_loss: 0.636778 generator_loss: 13.441806 discriminator_loss:
1.016084
epoch: 147 autoencoder_loss: 0.636044 generator_loss: 15.957472 discriminator_loss:
0.728521
epoch: 148 autoencoder_loss: 0.626711 generator_loss: 17.881477 discriminator_loss:
0.590266
epoch: 149 autoencoder_loss: 0.610489 generator_loss: 16.479031 discriminator_loss:
0.691260
epoch: 150 autoencoder_loss: 0.604284 generator_loss: 15.965757 discriminator_loss:
0.909533
epoch: 151 autoencoder_loss: 0.601113 generator_loss: 15.803917 discriminator_loss:
0.677617
epoch: 152 autoencoder_loss: 0.588587 generator_loss: 15.472897 discriminator_loss:
0.446645
epoch: 153 autoencoder_loss: 0.577954 generator_loss: 15.326536 discriminator_loss:
0.401611
epoch: 154 autoencoder_loss: 0.573966 generator_loss: 14.898073 discriminator_loss:
0.461797
epoch: 155 autoencoder_loss: 0.566551 generator_loss: 13.698390 discriminator_loss:
0.592258
epoch: 156 autoencoder_loss: 0.555457 generator_loss: 13.704598 discriminator_loss:
0.586858
epoch: 157 autoencoder_loss: 0.549211 generator_loss: 14.168315 discriminator_loss:
0.350686
epoch: 158 autoencoder_loss: 0.544088 generator_loss: 13.411526 discriminator_loss:
1.197414
epoch: 159 autoencoder_loss: 0.535226 generator_loss: 14.446563 discriminator_loss:
0.508121
epoch: 160 autoencoder_loss: 0.526714 generator_loss: 13.583950 discriminator_loss:
0.626451
epoch: 161 autoencoder_loss: 0.520763 generator_loss: 14.933292 discriminator_loss:
0.500269
epoch: 162 autoencoder_loss: 0.514549 generator_loss: 14.930269 discriminator_loss:
0.511283
epoch: 163 autoencoder_loss: 0.506723 generator_loss: 13.389774 discriminator_loss:
0.714555
epoch: 164 autoencoder_loss: 0.499726 generator_loss: 14.266387 discriminator_loss:
0.690327
epoch: 165 autoencoder_loss: 0.494052 generator_loss: 13.719096 discriminator_loss:
0.934917
epoch: 166 autoencoder_loss: 0.488282 generator_loss: 14.780727 discriminator_loss:
0.746340
epoch: 167 autoencoder_loss: 0.481388 generator_loss: 14.740948 discriminator_loss:
0.496803
epoch: 168 autoencoder_loss: 0.474575 generator_loss: 13.173899 discriminator_loss:
0.958540
```

```
epoch: 169 autoencoder_loss: 0.468652 generator_loss: 14.874777 discriminator_loss:
0.545938
epoch: 170 autoencoder_loss: 0.462993 generator_loss: 13.184084 discriminator_loss:
0.731281
epoch: 171 autoencoder_loss: 0.456956 generator_loss: 15.070485 discriminator_loss:
0.867484
epoch: 172 autoencoder_loss: 0.450278 generator_loss: 13.660117 discriminator_loss:
0.808734
epoch: 173 autoencoder_loss: 0.444106 generator_loss: 15.613926 discriminator_loss:
0.536916
epoch: 174 autoencoder_loss: 0.438628 generator_loss: 14.220795 discriminator_loss:
0.537936
epoch: 175 autoencoder_loss: 0.433649 generator_loss: 13.329548 discriminator_loss:
0.748911
epoch: 176 autoencoder_loss: 0.428343 generator_loss: 15.237835 discriminator_loss:
0.556248
epoch: 177 autoencoder_loss: 0.422376 generator_loss: 15.361459 discriminator_loss:
0.672775
epoch: 178 autoencoder_loss: 0.416882 generator_loss: 13.862252 discriminator_loss:
0.702724
epoch: 179 autoencoder_loss: 0.411846 generator_loss: 14.235872 discriminator_loss:
0.534687
epoch: 180 autoencoder_loss: 0.407222 generator_loss: 12.809393 discriminator_loss:
0.988626
epoch: 181 autoencoder_loss: 0.402396 generator_loss: 11.086588 discriminator_loss:
1.787201
epoch: 182 autoencoder_loss: 0.397573 generator_loss: 14.103371 discriminator_loss:
0.612790
epoch: 183 autoencoder_loss: 0.392789 generator_loss: 13.542231 discriminator_loss:
0.632339
epoch: 184 autoencoder_loss: 0.388021 generator_loss: 14.731598 discriminator_loss:
0.975798
epoch: 185 autoencoder_loss: 0.383221 generator_loss: 15.522688 discriminator_loss:
0.710266
epoch: 186 autoencoder_loss: 0.378491 generator_loss: 14.291824 discriminator_loss:
1.086253
epoch: 187 autoencoder_loss: 0.374120 generator_loss: 15.330355 discriminator_loss:
0.656038
epoch: 188 autoencoder_loss: 0.370012 generator_loss: 13.532672 discriminator_loss:
0.634867
epoch: 189 autoencoder_loss: 0.366331 generator_loss: 15.124782 discriminator_loss:
0.594898
epoch: 190 autoencoder_loss: 0.364276 generator_loss: 13.830207 discriminator_loss:
0.586412
epoch: 191 autoencoder_loss: 0.364780 generator_loss: 13.212029 discriminator_loss:
0.753937
epoch: 192 autoencoder_loss: 0.368382 generator_loss: 13.860822 discriminator_loss:
0.361230
epoch: 193 autoencoder_loss: 0.371657 generator_loss: 13.618663 discriminator_loss:
0.364466
epoch: 194 autoencoder_loss: 0.365339 generator_loss: 11.168380 discriminator_loss:
2.766619
epoch: 195 autoencoder_loss: 0.348112 generator_loss: 12.599375 discriminator_loss:
0.598458
epoch: 196 autoencoder_loss: 0.339306 generator_loss: 13.389244 discriminator_loss:
0.652308
```

```
epoch: 197 autoencoder_loss: 0.343584 generator_loss: 15.191389 discriminator_loss:
0.746359
epoch: 198 autoencoder_loss: 0.343632 generator_loss: 14.265976 discriminator_loss:
0.730531
epoch: 199 autoencoder_loss: 0.333421 generator_loss: 16.276264 discriminator_loss:
0.508674
epoch: 200 autoencoder_loss: 0.326215 generator_loss: 15.860598 discriminator_loss:
0.477652
epoch: 201 autoencoder_loss: 0.328342 generator_loss: 15.345400 discriminator_loss:
0.717747
epoch: 202 autoencoder_loss: 0.327271 generator_loss: 12.974331 discriminator_loss:
0.495508
epoch: 203 autoencoder_loss: 0.318707 generator_loss: 14.966242 discriminator_loss:
0.398692
epoch: 204 autoencoder_loss: 0.315118 generator_loss: 13.054873 discriminator_loss:
1.331770
epoch: 205 autoencoder_loss: 0.316566 generator_loss: 12.993126 discriminator_loss:
0.827619
epoch: 206 autoencoder_loss: 0.313254 generator_loss: 13.586996 discriminator_loss:
0.840266
epoch: 207 autoencoder_loss: 0.307336 generator_loss: 15.305888 discriminator_loss:
0.438969
epoch: 208 autoencoder_loss: 0.305263 generator_loss: 13.103544 discriminator_loss:
0.597162
epoch: 209 autoencoder_loss: 0.304367 generator_loss: 15.898469 discriminator_loss:
0.888080
epoch: 210 autoencoder_loss: 0.300230 generator_loss: 15.177361 discriminator_loss:
1.044974
epoch: 211 autoencoder_loss: 0.296371 generator_loss: 12.892111 discriminator_loss:
0.917631
epoch: 212 autoencoder_loss: 0.295396 generator_loss: 14.353574 discriminator_loss:
0.393117
epoch: 213 autoencoder_loss: 0.293823 generator_loss: 15.441633 discriminator_loss:
0.361993
epoch: 214 autoencoder_loss: 0.290012 generator_loss: 15.367608 discriminator_loss:
0.525514
epoch: 215 autoencoder_loss: 0.287053 generator_loss: 13.881274 discriminator_loss:
0.770094
epoch: 216 autoencoder_loss: 0.285051 generator_loss: 15.482950 discriminator_loss:
0.348016
epoch: 217 autoencoder_loss: 0.283001 generator_loss: 13.813728 discriminator_loss:
0.707244
epoch: 218 autoencoder_loss: 0.280664 generator_loss: 15.206643 discriminator_loss:
0.275380
epoch: 219 autoencoder_loss: 0.278357 generator_loss: 13.753578 discriminator_loss:
0.634110
epoch: 220 autoencoder_loss: 0.276319 generator_loss: 12.111045 discriminator_loss:
1.061749
epoch: 221 autoencoder_loss: 0.274383 generator_loss: 15.655750 discriminator_loss:
0.408677
epoch: 222 autoencoder_loss: 0.272161 generator_loss: 14.479631 discriminator_loss:
0.561653
epoch: 223 autoencoder_loss: 0.269711 generator_loss: 14.436346 discriminator_loss:
0.448762
epoch: 224 autoencoder_loss: 0.267611 generator_loss: 14.138132 discriminator_loss:
0.409338
```

```
epoch: 225 autoencoder_loss: 0.265871 generator_loss: 14.889339 discriminator_loss:
0.288135
epoch: 226 autoencoder_loss: 0.263777 generator_loss: 13.229555 discriminator_loss:
0.631217
epoch: 227 autoencoder_loss: 0.261143 generator_loss: 12.719105 discriminator_loss:
0.801419
epoch: 228 autoencoder_loss: 0.259161 generator_loss: 13.816124 discriminator_loss:
0.357612
epoch: 229 autoencoder_loss: 0.257841 generator_loss: 14.916559 discriminator_loss:
0.305663
epoch: 230 autoencoder_loss: 0.256453 generator_loss: 15.704085 discriminator_loss:
0.272298
epoch: 231 autoencoder_loss: 0.255157 generator_loss: 14.968628 discriminator_loss:
0.382483
epoch: 232 autoencoder_loss: 0.254122 generator_loss: 12.811628 discriminator_loss:
0.588947
epoch: 233 autoencoder_loss: 0.253639 generator_loss: 14.225564 discriminator_loss:
0.502002
epoch: 234 autoencoder_loss: 0.253076 generator_loss: 13.337965 discriminator_loss:
0.597870
epoch: 235 autoencoder_loss: 0.251070 generator_loss: 13.414307 discriminator_loss:
0.464072
epoch: 236 autoencoder_loss: 0.248003 generator_loss: 14.438838 discriminator_loss:
0.469347
epoch: 237 autoencoder_loss: 0.244774 generator_loss: 14.964862 discriminator_loss:
0.398727
epoch: 238 autoencoder_loss: 0.241365 generator_loss: 13.433081 discriminator_loss:
0.500315
epoch: 239 autoencoder_loss: 0.238393 generator_loss: 13.331883 discriminator_loss:
0.474797
epoch: 240 autoencoder_loss: 0.236570 generator_loss: 14.890873 discriminator_loss:
0.337905
epoch: 241 autoencoder_loss: 0.235522 generator_loss: 12.576109 discriminator_loss:
0.367136
epoch: 242 autoencoder_loss: 0.234367 generator_loss: 10.992680 discriminator_loss:
1.110013
epoch: 243 autoencoder_loss: 0.233250 generator_loss: 10.979516 discriminator_loss:
0.669634
epoch: 244 autoencoder_loss: 0.232221 generator_loss: 15.496502 discriminator_loss:
0.407257
epoch: 245 autoencoder_loss: 0.230672 generator_loss: 14.476192 discriminator_loss:
0.572023
epoch: 246 autoencoder_loss: 0.228385 generator_loss: 12.634949 discriminator_loss:
0.713862
epoch: 247 autoencoder_loss: 0.226256 generator_loss: 15.727710 discriminator_loss:
0.356531
epoch: 248 autoencoder_loss: 0.224377 generator_loss: 14.083939 discriminator_loss:
0.598166
epoch: 249 autoencoder_loss: 0.222010 generator_loss: 14.694128 discriminator_loss:
0.302712
epoch: 250 autoencoder_loss: 0.219371 generator_loss: 14.651377 discriminator_loss:
0.411227
epoch: 251 autoencoder_loss: 0.218586 generator_loss: 14.783252 discriminator_loss:
0.482679
epoch: 252 autoencoder_loss: 0.219406 generator_loss: 15.508841 discriminator_loss:
0.560738
```

```
epoch: 253 autoencoder_loss: 0.218330 generator_loss: 15.541486 discriminator_loss:
0.293329
epoch: 254 autoencoder_loss: 0.217125 generator_loss: 12.590981 discriminator_loss:
0.761007
epoch: 255 autoencoder_loss: 0.217223 generator_loss: 15.353483 discriminator_loss:
0.316513
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0.295506
epoch: 257 autoencoder_loss: 0.216454 generator_loss: 13.974184 discriminator_loss:
0.645768
epoch: 258 autoencoder_loss: 0.214927 generator_loss: 13.235487 discriminator_loss:
0.388113
epoch: 259 autoencoder_loss: 0.213466 generator_loss: 15.324721 discriminator_loss:
0.338531
epoch: 260 autoencoder_loss: 0.211394 generator_loss: 15.809355 discriminator_loss:
0.525591
epoch: 261 autoencoder_loss: 0.207637 generator_loss: 14.998567 discriminator_loss:
0.274019
epoch: 262 autoencoder_loss: 0.204995 generator_loss: 13.597427 discriminator_loss:
0.531305
epoch: 263 autoencoder_loss: 0.205476 generator_loss: 13.588071 discriminator_loss:
1.173700
epoch: 264 autoencoder_loss: 0.206335 generator_loss: 14.050105 discriminator_loss:
0.630642
epoch: 265 autoencoder_loss: 0.205593 generator_loss: 12.859537 discriminator_loss:
0.836692
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0.684051
epoch: 267 autoencoder_loss: 0.204082 generator_loss: 14.065641 discriminator_loss:
0.502421
epoch: 268 autoencoder_loss: 0.203980 generator_loss: 16.742599 discriminator_loss:
0.473662
epoch: 269 autoencoder_loss: 0.202010 generator_loss: 15.449744 discriminator_loss:
0.499335
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0.509651
epoch: 271 autoencoder_loss: 0.197577 generator_loss: 17.439077 discriminator_loss:
0.273960
epoch: 272 autoencoder_loss: 0.198373 generator_loss: 14.829400 discriminator_loss:
0.657790
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0.347446
epoch: 274 autoencoder_loss: 0.197662 generator_loss: 14.698284 discriminator_loss:
0.439062
epoch: 275 autoencoder_loss: 0.195146 generator_loss: 12.810346 discriminator_loss:
0.388881
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0.619281
epoch: 277 autoencoder_loss: 0.192812 generator_loss: 15.508480 discriminator_loss:
0.268130
epoch: 278 autoencoder_loss: 0.191518 generator_loss: 13.259686 discriminator_loss:
0.613740
epoch: 279 autoencoder_loss: 0.190562 generator_loss: 14.294794 discriminator_loss:
0.768514
epoch: 280 autoencoder_loss: 0.190003 generator_loss: 11.354280 discriminator_loss:
1.164043
```

```
epoch: 281 autoencoder_loss: 0.189859 generator_loss: 12.353910 discriminator_loss:
0.659963
epoch: 282 autoencoder_loss: 0.189367 generator_loss: 15.946639 discriminator_loss:
0.417582
epoch: 283 autoencoder_loss: 0.188384 generator_loss: 15.936618 discriminator_loss:
0.447581
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0.625410
epoch: 285 autoencoder_loss: 0.187169 generator_loss: 14.093951 discriminator_loss:
0.536658
epoch: 286 autoencoder_loss: 0.185788 generator_loss: 14.613678 discriminator_loss:
0.628311
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1.112788
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0.703216
epoch: 289 autoencoder_loss: 0.182162 generator_loss: 13.463806 discriminator_loss:
1.009052
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0.406721
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0.476600
epoch: 292 autoencoder_loss: 0.183508 generator_loss: 11.970581 discriminator_loss:
0.704746
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0.501863
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0.589933
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0.945009
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0.509110
epoch: 302 autoencoder_loss: 0.173559 generator_loss: 14.321066 discriminator_loss:
0.364781
epoch: 303 autoencoder_loss: 0.171597 generator_loss: 14.632889 discriminator_loss:
1.096917
epoch: 304 autoencoder_loss: 0.170038 generator_loss: 14.878939 discriminator_loss:
1.099677
epoch: 305 autoencoder_loss: 0.169368 generator_loss: 14.244065 discriminator_loss:
0.731010
epoch: 306 autoencoder_loss: 0.169981 generator_loss: 13.853168 discriminator_loss:
1.126772
epoch: 307 autoencoder_loss: 0.169308 generator_loss: 14.473164 discriminator_loss:
0.609938
epoch: 308 autoencoder_loss: 0.167607 generator_loss: 11.526846 discriminator_loss:
1.738210
```

```
epoch: 309 autoencoder_loss: 0.165834 generator_loss: 15.507544 discriminator_loss:
0.473025
epoch: 310 autoencoder_loss: 0.165077 generator_loss: 15.494485 discriminator_loss:
0.592171
epoch: 311 autoencoder_loss: 0.165254 generator_loss: 14.259142 discriminator_loss:
1.343628
epoch: 312 autoencoder_loss: 0.164755 generator_loss: 15.803982 discriminator_loss:
0.369378
epoch: 313 autoencoder_loss: 0.165221 generator_loss: 15.482091 discriminator_loss:
0.411732
epoch: 314 autoencoder_loss: 0.164676 generator_loss: 15.303461 discriminator_loss:
0.616730
epoch: 315 autoencoder_loss: 0.163592 generator_loss: 12.798746 discriminator_loss:
0.717046
epoch: 316 autoencoder_loss: 0.162794 generator_loss: 15.881606 discriminator_loss:
0.387748
epoch: 317 autoencoder_loss: 0.161921 generator_loss: 15.352036 discriminator_loss:
0.502404
epoch: 318 autoencoder_loss: 0.161584 generator_loss: 14.789023 discriminator_loss:
0.535639
epoch: 319 autoencoder_loss: 0.160855 generator_loss: 13.357434 discriminator_loss:
0.696894
epoch: 320 autoencoder_loss: 0.159944 generator_loss: 13.707529 discriminator_loss:
0.660673
epoch: 321 autoencoder_loss: 0.159222 generator_loss: 13.686886 discriminator_loss:
0.904452
epoch: 322 autoencoder_loss: 0.159932 generator_loss: 11.756893 discriminator_loss:
1.168679
epoch: 323 autoencoder_loss: 0.161574 generator_loss: 14.273644 discriminator_loss:
0.543058
epoch: 324 autoencoder_loss: 0.163215 generator_loss: 15.228711 discriminator_loss:
0.535719
epoch: 325 autoencoder_loss: 0.164533 generator_loss: 14.020958 discriminator_loss:
0.584245
epoch: 326 autoencoder_loss: 0.164926 generator_loss: 14.150386 discriminator_loss:
0.942567
epoch: 327 autoencoder_loss: 0.165089 generator_loss: 15.343044 discriminator_loss:
0.535023
epoch: 328 autoencoder_loss: 0.160891 generator_loss: 14.213156 discriminator_loss:
0.656989
epoch: 329 autoencoder_loss: 0.154448 generator_loss: 13.913664 discriminator_loss:
0.556546
epoch: 330 autoencoder_loss: 0.149137 generator_loss: 12.702909 discriminator_loss:
0.626486
epoch: 331 autoencoder_loss: 0.148271 generator_loss: 12.894882 discriminator_loss:
0.721940
epoch: 332 autoencoder_loss: 0.150802 generator_loss: 13.189585 discriminator_loss:
0.522032
epoch: 333 autoencoder_loss: 0.151871 generator_loss: 11.625270 discriminator_loss:
0.646152
epoch: 334 autoencoder_loss: 0.149757 generator_loss: 13.556939 discriminator_loss:
0.469411
epoch: 335 autoencoder_loss: 0.146070 generator_loss: 13.035284 discriminator_loss:
0.731180
epoch: 336 autoencoder_loss: 0.144542 generator_loss: 13.920622 discriminator_loss:
0.523273
```

```
epoch: 337 autoencoder_loss: 0.145022 generator_loss: 14.072613 discriminator_loss:
0.496064
epoch: 338 autoencoder_loss: 0.145389 generator_loss: 13.512260 discriminator_loss:
0.653278
epoch: 339 autoencoder_loss: 0.144048 generator_loss: 13.222237 discriminator_loss:
0.566420
epoch: 340 autoencoder_loss: 0.142088 generator_loss: 12.607246 discriminator_loss:
0.839405
epoch: 341 autoencoder_loss: 0.140885 generator_loss: 12.165129 discriminator_loss:
0.560068
epoch: 342 autoencoder_loss: 0.141200 generator_loss: 13.513754 discriminator_loss:
0.466148
epoch: 343 autoencoder_loss: 0.141368 generator_loss: 13.301321 discriminator_loss:
0.706417
epoch: 344 autoencoder_loss: 0.140374 generator_loss: 15.486370 discriminator_loss:
0.330875
epoch: 345 autoencoder_loss: 0.138731 generator_loss: 13.570733 discriminator_loss:
0.496106
epoch: 346 autoencoder_loss: 0.139705 generator_loss: 13.176250 discriminator_loss:
0.480696
epoch: 347 autoencoder_loss: 0.141949 generator_loss: 14.625058 discriminator_loss:
0.470799
epoch: 348 autoencoder_loss: 0.142373 generator_loss: 13.614902 discriminator_loss:
0.621661
epoch: 349 autoencoder_loss: 0.141176 generator_loss: 13.196130 discriminator_loss:
0.635690
epoch: 350 autoencoder_loss: 0.139881 generator_loss: 15.838343 discriminator_loss:
0.450599
epoch: 351 autoencoder_loss: 0.139120 generator_loss: 15.328116 discriminator_loss:
0.569405
epoch: 352 autoencoder_loss: 0.138580 generator_loss: 14.495775 discriminator_loss:
0.572286
epoch: 353 autoencoder_loss: 0.138123 generator_loss: 14.409535 discriminator_loss:
0.641136
epoch: 354 autoencoder_loss: 0.137324 generator_loss: 15.477001 discriminator_loss:
0.320857
epoch: 355 autoencoder_loss: 0.137178 generator_loss: 11.958679 discriminator_loss:
0.541221
epoch: 356 autoencoder_loss: 0.136946 generator_loss: 12.975118 discriminator_loss:
0.915587
epoch: 357 autoencoder_loss: 0.135854 generator_loss: 14.760782 discriminator_loss:
0.353433
epoch: 358 autoencoder_loss: 0.134438 generator_loss: 15.813436 discriminator_loss:
0.425910
epoch: 359 autoencoder_loss: 0.135645 generator_loss: 14.966503 discriminator_loss:
0.825025
epoch: 360 autoencoder_loss: 0.136460 generator_loss: 13.568701 discriminator_loss:
0.490719
epoch: 361 autoencoder_loss: 0.135063 generator_loss: 14.215389 discriminator_loss:
0.378333
epoch: 362 autoencoder_loss: 0.133549 generator_loss: 16.695694 discriminator_loss:
0.671012
epoch: 363 autoencoder_loss: 0.133304 generator_loss: 13.829840 discriminator_loss:
0.561302
epoch: 364 autoencoder_loss: 0.133547 generator_loss: 13.182301 discriminator_loss:
0.658525
```

```
epoch: 365 autoencoder_loss: 0.133114 generator_loss: 14.048622 discriminator_loss:
0.826009
epoch: 366 autoencoder_loss: 0.132701 generator_loss: 14.029470 discriminator_loss:
0.473600
epoch: 367 autoencoder_loss: 0.132659 generator_loss: 14.226280 discriminator_loss:
0.606663
epoch: 368 autoencoder_loss: 0.133477 generator_loss: 11.426251 discriminator_loss:
1.304773
epoch: 369 autoencoder_loss: 0.135412 generator_loss: 14.765432 discriminator_loss:
0.659772
epoch: 370 autoencoder_loss: 0.136994 generator_loss: 15.256080 discriminator_loss:
0.444955
epoch: 371 autoencoder_loss: 0.139158 generator_loss: 14.624863 discriminator_loss:
0.902919
epoch: 372 autoencoder_loss: 0.139964 generator_loss: 12.520510 discriminator_loss:
0.941936
epoch: 373 autoencoder_loss: 0.140686 generator_loss: 14.928636 discriminator_loss:
0.515461
epoch: 374 autoencoder_loss: 0.139190 generator_loss: 12.632140 discriminator_loss:
0.577901
epoch: 375 autoencoder_loss: 0.135830 generator_loss: 15.530214 discriminator_loss:
0.480415
epoch: 376 autoencoder_loss: 0.132310 generator_loss: 14.633430 discriminator_loss:
0.510688
epoch: 377 autoencoder_loss: 0.131317 generator_loss: 15.373356 discriminator_loss:
0.407924
epoch: 378 autoencoder_loss: 0.132396 generator_loss: 15.468027 discriminator_loss:
0.353170
epoch: 379 autoencoder_loss: 0.130321 generator_loss: 15.418581 discriminator_loss:
0.420985
epoch: 380 autoencoder_loss: 0.126370 generator_loss: 12.666250 discriminator_loss:
0.635188
epoch: 381 autoencoder_loss: 0.123932 generator_loss: 13.135839 discriminator_loss:
0.648470
epoch: 382 autoencoder_loss: 0.124450 generator_loss: 12.187287 discriminator_loss:
0.493046
epoch: 383 autoencoder_loss: 0.126415 generator_loss: 13.862780 discriminator_loss:
0.289656
epoch: 384 autoencoder_loss: 0.125666 generator_loss: 15.455183 discriminator_loss:
0.231077
epoch: 385 autoencoder_loss: 0.122403 generator_loss: 13.926358 discriminator_loss:
0.516908
epoch: 386 autoencoder_loss: 0.119868 generator_loss: 15.187061 discriminator_loss:
0.324096
epoch: 387 autoencoder_loss: 0.120603 generator_loss: 13.015513 discriminator_loss:
0.780040
epoch: 388 autoencoder_loss: 0.122551 generator_loss: 13.795627 discriminator_loss:
0.697068
epoch: 389 autoencoder_loss: 0.122704 generator_loss: 17.509130 discriminator_loss:
0.310518
epoch: 390 autoencoder_loss: 0.120590 generator_loss: 13.069226 discriminator_loss:
0.709504
epoch: 391 autoencoder_loss: 0.119325 generator_loss: 13.157799 discriminator_loss:
0.726668
epoch: 392 autoencoder_loss: 0.121953 generator_loss: 16.668127 discriminator_loss:
0.655290
```

```
epoch: 393 autoencoder_loss: 0.125586 generator_loss: 15.036026 discriminator_loss:
0.545984
epoch: 394 autoencoder_loss: 0.124650 generator_loss: 15.282557 discriminator_loss:
0.582760
epoch: 395 autoencoder_loss: 0.120199 generator_loss: 17.149830 discriminator_loss:
0.383907
epoch: 396 autoencoder_loss: 0.117970 generator_loss: 15.509405 discriminator_loss:
0.523268
epoch: 397 autoencoder_loss: 0.118698 generator_loss: 17.530325 discriminator_loss:
0.297093
epoch: 398 autoencoder_loss: 0.120016 generator_loss: 16.199411 discriminator_loss:
0.584488
epoch: 399 autoencoder_loss: 0.119586 generator_loss: 13.765489 discriminator_loss:
0.665921
epoch: 400 autoencoder_loss: 0.117243 generator_loss: 16.451258 discriminator_loss:
0.274225
epoch: 401 autoencoder_loss: 0.115233 generator_loss: 15.507164 discriminator_loss:
0.366219
epoch: 402 autoencoder_loss: 0.115352 generator_loss: 12.573244 discriminator_loss:
0.800238
epoch: 403 autoencoder_loss: 0.116455 generator_loss: 14.627001 discriminator_loss:
0.702650
epoch: 404 autoencoder_loss: 0.114958 generator_loss: 14.612920 discriminator_loss:
0.272829
epoch: 405 autoencoder_loss: 0.112829 generator_loss: 13.050556 discriminator_loss:
0.433849
epoch: 406 autoencoder_loss: 0.112655 generator_loss: 15.225062 discriminator_loss:
0.500872
epoch: 407 autoencoder_loss: 0.113998 generator_loss: 13.762282 discriminator_loss:
0.681567
epoch: 408 autoencoder_loss: 0.114997 generator_loss: 14.889442 discriminator_loss:
0.331541
epoch: 409 autoencoder_loss: 0.114320 generator_loss: 13.460616 discriminator_loss:
0.314533
epoch: 410 autoencoder_loss: 0.112169 generator_loss: 13.173117 discriminator_loss:
0.659301
epoch: 411 autoencoder_loss: 0.111631 generator_loss: 14.067812 discriminator_loss:
0.562470
epoch: 412 autoencoder_loss: 0.112057 generator_loss: 13.716248 discriminator_loss:
0.804638
epoch: 413 autoencoder_loss: 0.112078 generator_loss: 12.227588 discriminator_loss:
0.958612
epoch: 414 autoencoder_loss: 0.111000 generator_loss: 17.558243 discriminator_loss:
0.349742
epoch: 415 autoencoder_loss: 0.109296 generator_loss: 12.912842 discriminator_loss:
0.524791
epoch: 416 autoencoder_loss: 0.110017 generator_loss: 12.502043 discriminator_loss:
0.552123
epoch: 417 autoencoder_loss: 0.113098 generator_loss: 13.991320 discriminator_loss:
0.789150
epoch: 418 autoencoder_loss: 0.115807 generator_loss: 14.918581 discriminator_loss:
0.540878
epoch: 419 autoencoder_loss: 0.117314 generator_loss: 14.074347 discriminator_loss:
0.631501
epoch: 420 autoencoder_loss: 0.120323 generator_loss: 14.381216 discriminator_loss:
0.806171
```

```
epoch: 421 autoencoder_loss: 0.124823 generator_loss: 13.459261 discriminator_loss:
0.805357
epoch: 422 autoencoder_loss: 0.126135 generator_loss: 13.744993 discriminator_loss:
1.089487
epoch: 423 autoencoder_loss: 0.123320 generator_loss: 14.197867 discriminator_loss:
0.699376
epoch: 424 autoencoder_loss: 0.116576 generator_loss: 14.161127 discriminator_loss:
0.492752
epoch: 425 autoencoder_loss: 0.110636 generator_loss: 11.708200 discriminator_loss:
0.505704
epoch: 426 autoencoder_loss: 0.108870 generator_loss: 11.356530 discriminator_loss:
1.301161
epoch: 427 autoencoder_loss: 0.110593 generator_loss: 12.302397 discriminator_loss:
1.109146
epoch: 428 autoencoder_loss: 0.112470 generator_loss: 11.581659 discriminator_loss:
0.731731
epoch: 429 autoencoder_loss: 0.111178 generator_loss: 14.083380 discriminator_loss:
0.594815
epoch: 430 autoencoder_loss: 0.108209 generator_loss: 14.638137 discriminator_loss:
0.493899
epoch: 431 autoencoder_loss: 0.105375 generator_loss: 14.264410 discriminator_loss:
0.627198
epoch: 432 autoencoder_loss: 0.104380 generator_loss: 13.885071 discriminator_loss:
0.413438
epoch: 433 autoencoder_loss: 0.105022 generator_loss: 12.926369 discriminator_loss:
0.396350
epoch: 434 autoencoder_loss: 0.105815 generator_loss: 12.675770 discriminator_loss:
0.442718
epoch: 435 autoencoder_loss: 0.106095 generator_loss: 14.006201 discriminator_loss:
0.383372
epoch: 436 autoencoder_loss: 0.105916 generator_loss: 12.466413 discriminator_loss:
0.827263
epoch: 437 autoencoder_loss: 0.105215 generator_loss: 13.690557 discriminator_loss:
0.490968
epoch: 438 autoencoder_loss: 0.103970 generator_loss: 14.776638 discriminator_loss:
0.263996
epoch: 439 autoencoder_loss: 0.103386 generator_loss: 12.211637 discriminator_loss:
0.785029
epoch: 440 autoencoder_loss: 0.103160 generator_loss: 14.148654 discriminator_loss:
0.381690
epoch: 441 autoencoder_loss: 0.102260 generator_loss: 14.592806 discriminator_loss:
0.500183
epoch: 442 autoencoder_loss: 0.101390 generator_loss: 12.726442 discriminator_loss:
0.461610
epoch: 443 autoencoder_loss: 0.100580 generator_loss: 15.240464 discriminator_loss:
0.340259
epoch: 444 autoencoder_loss: 0.101084 generator_loss: 11.821847 discriminator_loss:
0.628916
epoch: 445 autoencoder_loss: 0.103790 generator_loss: 11.174209 discriminator_loss:
1.074724
epoch: 446 autoencoder_loss: 0.105677 generator_loss: 12.949830 discriminator_loss:
0.688399
epoch: 447 autoencoder_loss: 0.104898 generator_loss: 14.077328 discriminator_loss:
0.568556
epoch: 448 autoencoder_loss: 0.102831 generator_loss: 13.766019 discriminator_loss:
0.530429
```

```
epoch: 449 autoencoder_loss: 0.101533 generator_loss: 12.145433 discriminator_loss:
0.728690
epoch: 450 autoencoder_loss: 0.101295 generator_loss: 14.279943 discriminator_loss:
0.767666
epoch: 451 autoencoder_loss: 0.103629 generator_loss: 14.465808 discriminator_loss:
0.526274
epoch: 452 autoencoder_loss: 0.107903 generator_loss: 14.271223 discriminator_loss:
0.460454
epoch: 453 autoencoder_loss: 0.109139 generator_loss: 13.330973 discriminator_loss:
0.737444
epoch: 454 autoencoder_loss: 0.107142 generator_loss: 13.024704 discriminator_loss:
0.405485
epoch: 455 autoencoder_loss: 0.103306 generator_loss: 14.286337 discriminator_loss:
0.313693
epoch: 456 autoencoder_loss: 0.100930 generator_loss: 14.680563 discriminator_loss:
0.246136
epoch: 457 autoencoder_loss: 0.101184 generator_loss: 12.765919 discriminator_loss:
0.546794
epoch: 458 autoencoder_loss: 0.104625 generator_loss: 12.659595 discriminator_loss:
0.665781
epoch: 459 autoencoder_loss: 0.108305 generator_loss: 13.342449 discriminator_loss:
0.604270
epoch: 460 autoencoder_loss: 0.108382 generator_loss: 15.472953 discriminator_loss:
0.455828
epoch: 461 autoencoder_loss: 0.104997 generator_loss: 15.698322 discriminator_loss:
0.343788
epoch: 462 autoencoder_loss: 0.101192 generator_loss: 13.657837 discriminator_loss:
0.265926
epoch: 463 autoencoder_loss: 0.100917 generator_loss: 11.673415 discriminator_loss:
0.632675
epoch: 464 autoencoder_loss: 0.103327 generator_loss: 13.161446 discriminator_loss:
0.614014
epoch: 465 autoencoder_loss: 0.104738 generator_loss: 14.449283 discriminator_loss:
0.406383
epoch: 466 autoencoder_loss: 0.103760 generator_loss: 15.315387 discriminator_loss:
0.433961
epoch: 467 autoencoder_loss: 0.102571 generator_loss: 13.748066 discriminator_loss:
0.599313
epoch: 468 autoencoder_loss: 0.101514 generator_loss: 13.262478 discriminator_loss:
0.527249
epoch: 469 autoencoder_loss: 0.101136 generator_loss: 12.944654 discriminator_loss:
0.652913
epoch: 470 autoencoder_loss: 0.101480 generator_loss: 12.783314 discriminator_loss:
0.552324
epoch: 471 autoencoder_loss: 0.103078 generator_loss: 13.725783 discriminator_loss:
0.452446
epoch: 472 autoencoder_loss: 0.105336 generator_loss: 13.098475 discriminator_loss:
0.419340
epoch: 473 autoencoder_loss: 0.106994 generator_loss: 13.929264 discriminator_loss:
0.426152
epoch: 474 autoencoder_loss: 0.106366 generator_loss: 15.575245 discriminator_loss:
0.345165
epoch: 475 autoencoder_loss: 0.104204 generator_loss: 14.510575 discriminator_loss:
0.457504
epoch: 476 autoencoder_loss: 0.101473 generator_loss: 14.281136 discriminator_loss:
0.545126
```

```
epoch: 477 autoencoder_loss: 0.100556 generator_loss: 13.263012 discriminator_loss:
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0.712501
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0.732263
epoch: 483 autoencoder_loss: 0.096859 generator_loss: 13.086578 discriminator_loss:
0.524266
epoch: 484 autoencoder_loss: 0.096374 generator_loss: 12.672956 discriminator_loss:
0.655823
epoch: 485 autoencoder_loss: 0.095020 generator_loss: 13.298650 discriminator_loss:
0.664520
epoch: 486 autoencoder_loss: 0.094216 generator_loss: 12.613480 discriminator_loss:
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0.669592
epoch: 493 autoencoder_loss: 0.092499 generator_loss: 12.619063 discriminator_loss:
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0.604011
epoch: 496 autoencoder_loss: 0.092390 generator_loss: 14.319952 discriminator_loss:
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0.578454
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0.771020
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0.298569
epoch: 504 autoencoder_loss: 0.100319 generator_loss: 12.416922 discriminator_loss:
0.710517
```

```
epoch: 505 autoencoder_loss: 0.097942 generator_loss: 14.202206 discriminator_loss:
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epoch: 506 autoencoder_loss: 0.094036 generator_loss: 13.649265 discriminator_loss:
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epoch: 507 autoencoder_loss: 0.091351 generator_loss: 15.617531 discriminator_loss:
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epoch: 509 autoencoder_loss: 0.091630 generator_loss: 12.777876 discriminator_loss:
0.396061
epoch: 510 autoencoder_loss: 0.093438 generator_loss: 12.676117 discriminator_loss:
0.437328
epoch: 511 autoencoder_loss: 0.093999 generator_loss: 13.648331 discriminator_loss:
0.314325
epoch: 512 autoencoder_loss: 0.092273 generator_loss: 13.167226 discriminator_loss:
0.480242
epoch: 513 autoencoder_loss: 0.090688 generator_loss: 15.254626 discriminator_loss:
0.268919
epoch: 514 autoencoder_loss: 0.089385 generator_loss: 14.182289 discriminator_loss:
0.521381
epoch: 515 autoencoder_loss: 0.088673 generator_loss: 12.140464 discriminator_loss:
0.281842
epoch: 516 autoencoder_loss: 0.088118 generator_loss: 12.104255 discriminator_loss:
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epoch: 518 autoencoder_loss: 0.088018 generator_loss: 14.717439 discriminator_loss:
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0.571960
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0.391440
epoch: 528 autoencoder_loss: 0.085824 generator_loss: 14.140406 discriminator_loss:
0.650701
epoch: 529 autoencoder_loss: 0.085785 generator_loss: 16.280800 discriminator_loss:
0.393800
epoch: 530 autoencoder_loss: 0.085085 generator_loss: 14.670919 discriminator_loss:
0.263745
epoch: 531 autoencoder_loss: 0.085429 generator_loss: 13.733393 discriminator_loss:
0.486946
epoch: 532 autoencoder_loss: 0.086336 generator_loss: 16.029848 discriminator_loss:
0.264869
```

```
epoch: 533 autoencoder_loss: 0.085849 generator_loss: 14.112315 discriminator_loss:
0.268099
epoch: 534 autoencoder_loss: 0.085046 generator_loss: 12.788566 discriminator_loss:
0.731281
epoch: 535 autoencoder_loss: 0.083788 generator_loss: 12.306643 discriminator_loss:
0.293902
epoch: 536 autoencoder_loss: 0.084110 generator_loss: 13.308208 discriminator_loss:
0.210347
epoch: 537 autoencoder_loss: 0.085113 generator_loss: 13.909263 discriminator_loss:
0.327366
epoch: 538 autoencoder_loss: 0.085370 generator_loss: 12.162876 discriminator_loss:
0.433103
epoch: 539 autoencoder_loss: 0.085821 generator_loss: 14.439207 discriminator_loss:
0.421139
epoch: 540 autoencoder_loss: 0.086119 generator_loss: 14.515737 discriminator_loss:
0.502473
epoch: 541 autoencoder_loss: 0.085923 generator_loss: 15.150800 discriminator_loss:
0.198259
epoch: 542 autoencoder_loss: 0.085262 generator_loss: 15.154405 discriminator_loss:
0.119831
epoch: 543 autoencoder_loss: 0.084677 generator_loss: 14.321918 discriminator_loss:
0.137522
epoch: 544 autoencoder_loss: 0.083798 generator_loss: 12.643127 discriminator_loss:
0.636600
epoch: 545 autoencoder_loss: 0.083181 generator_loss: 12.715061 discriminator_loss:
0.272510
epoch: 546 autoencoder_loss: 0.083350 generator_loss: 14.892122 discriminator_loss:
0.177305
epoch: 547 autoencoder_loss: 0.084500 generator_loss: 14.627214 discriminator_loss:
0.210863
epoch: 548 autoencoder_loss: 0.085062 generator_loss: 12.725428 discriminator_loss:
0.328809
epoch: 549 autoencoder_loss: 0.085739 generator_loss: 12.697735 discriminator_loss:
0.363673
epoch: 550 autoencoder_loss: 0.084798 generator_loss: 11.762135 discriminator_loss:
0.467396
epoch: 551 autoencoder_loss: 0.086539 generator_loss: 13.676373 discriminator_loss:
0.246436
epoch: 552 autoencoder_loss: 0.087355 generator_loss: 15.941566 discriminator_loss:
0.256604
epoch: 553 autoencoder_loss: 0.086219 generator_loss: 15.560196 discriminator_loss:
0.196042
epoch: 554 autoencoder_loss: 0.084788 generator_loss: 13.590912 discriminator_loss:
0.145418
epoch: 555 autoencoder_loss: 0.083894 generator_loss: 15.440336 discriminator_loss:
0.137221
epoch: 556 autoencoder_loss: 0.083941 generator_loss: 14.818096 discriminator_loss:
0.156941
epoch: 557 autoencoder_loss: 0.086196 generator_loss: 13.877837 discriminator_loss:
0.199916
epoch: 558 autoencoder_loss: 0.090981 generator_loss: 13.974342 discriminator_loss:
0.380816
epoch: 559 autoencoder_loss: 0.094412 generator_loss: 13.444096 discriminator_loss:
0.265572
epoch: 560 autoencoder_loss: 0.094668 generator_loss: 13.936594 discriminator_loss:
0.299165
```

```
epoch: 561 autoencoder_loss: 0.092482 generator_loss: 16.593979 discriminator_loss:
0.141391
epoch: 562 autoencoder_loss: 0.088581 generator_loss: 16.371645 discriminator_loss:
0.112724
epoch: 563 autoencoder_loss: 0.085455 generator_loss: 15.052688 discriminator_loss:
0.327292
epoch: 564 autoencoder_loss: 0.084602 generator_loss: 15.383757 discriminator_loss:
0.287654
epoch: 565 autoencoder_loss: 0.084385 generator_loss: 17.685190 discriminator_loss:
0.119482
epoch: 566 autoencoder_loss: 0.084454 generator_loss: 18.648649 discriminator_loss:
0.383098
epoch: 567 autoencoder_loss: 0.083938 generator_loss: 14.648870 discriminator_loss:
0.132638
epoch: 568 autoencoder_loss: 0.082480 generator_loss: 14.271627 discriminator_loss:
0.325901
epoch: 569 autoencoder_loss: 0.080905 generator_loss: 14.317365 discriminator_loss:
0.123433
epoch: 570 autoencoder_loss: 0.080947 generator_loss: 14.770740 discriminator_loss:
0.519302
epoch: 571 autoencoder_loss: 0.082109 generator_loss: 15.949393 discriminator_loss:
0.248810
epoch: 572 autoencoder_loss: 0.083062 generator_loss: 17.067831 discriminator_loss:
0.160963
epoch: 573 autoencoder_loss: 0.084003 generator_loss: 16.771404 discriminator_loss:
0.099439
epoch: 574 autoencoder_loss: 0.085874 generator_loss: 15.664846 discriminator_loss:
0.087129
epoch: 575 autoencoder_loss: 0.089122 generator_loss: 16.538883 discriminator_loss:
0.090502
epoch: 576 autoencoder_loss: 0.094028 generator_loss: 14.370583 discriminator_loss:
0.087261
epoch: 577 autoencoder_loss: 0.097200 generator_loss: 18.147161 discriminator_loss:
0.102203
epoch: 578 autoencoder_loss: 0.098287 generator_loss: 17.104126 discriminator_loss:
0.104537
epoch: 579 autoencoder_loss: 0.092402 generator_loss: 14.654097 discriminator_loss:
0.116301
epoch: 580 autoencoder_loss: 0.084745 generator_loss: 15.857472 discriminator_loss:
0.146333
epoch: 581 autoencoder_loss: 0.079833 generator_loss: 18.100069 discriminator_loss:
0.237869
epoch: 582 autoencoder_loss: 0.080627 generator_loss: 13.765536 discriminator_loss:
0.288606
epoch: 583 autoencoder_loss: 0.084473 generator_loss: 14.792233 discriminator_loss:
0.130835
epoch: 584 autoencoder_loss: 0.085397 generator_loss: 16.422161 discriminator_loss:
0.178414
epoch: 585 autoencoder_loss: 0.082497 generator_loss: 14.042072 discriminator_loss:
0.272843
epoch: 586 autoencoder_loss: 0.078439 generator_loss: 13.434072 discriminator_loss:
0.899578
epoch: 587 autoencoder_loss: 0.078235 generator_loss: 15.160263 discriminator_loss:
0.426053
epoch: 588 autoencoder_loss: 0.080939 generator_loss: 15.871983 discriminator_loss:
0.740282
```

```
epoch: 589 autoencoder_loss: 0.081330 generator_loss: 14.470984 discriminator_loss:
0.558909
epoch: 590 autoencoder_loss: 0.078871 generator_loss: 16.074156 discriminator_loss:
0.234488
epoch: 591 autoencoder_loss: 0.076627 generator_loss: 14.608936 discriminator_loss:
0.461823
epoch: 592 autoencoder_loss: 0.076697 generator_loss: 14.996869 discriminator_loss:
0.439864
epoch: 593 autoencoder_loss: 0.078937 generator_loss: 12.928589 discriminator_loss:
0.408171
epoch: 594 autoencoder_loss: 0.081066 generator_loss: 13.652338 discriminator_loss:
0.325478
epoch: 595 autoencoder_loss: 0.082830 generator_loss: 15.607263 discriminator_loss:
0.277066
epoch: 596 autoencoder_loss: 0.082471 generator_loss: 16.060802 discriminator_loss:
0.280873
epoch: 597 autoencoder_loss: 0.080871 generator_loss: 13.961151 discriminator_loss:
0.563579
epoch: 598 autoencoder_loss: 0.078787 generator_loss: 13.726576 discriminator_loss:
0.354817
epoch: 599 autoencoder_loss: 0.077609 generator_loss: 12.479744 discriminator_loss:
0.291546
epoch: 600 autoencoder_loss: 0.077893 generator_loss: 15.495536 discriminator_loss:
0.234426
epoch: 601 autoencoder_loss: 0.078311 generator_loss: 14.332876 discriminator_loss:
0.345057
epoch: 602 autoencoder_loss: 0.078079 generator_loss: 17.259323 discriminator_loss:
0.203377
epoch: 603 autoencoder_loss: 0.077514 generator_loss: 13.670368 discriminator_loss:
0.474280
epoch: 604 autoencoder_loss: 0.077366 generator_loss: 13.621759 discriminator_loss:
0.433631
epoch: 605 autoencoder_loss: 0.077842 generator_loss: 14.046761 discriminator_loss:
0.559921
epoch: 606 autoencoder_loss: 0.077917 generator_loss: 13.437073 discriminator_loss:
0.692894
epoch: 607 autoencoder_loss: 0.077732 generator_loss: 13.969412 discriminator_loss:
0.696001
epoch: 608 autoencoder_loss: 0.077497 generator_loss: 13.498913 discriminator_loss:
0.759405
epoch: 609 autoencoder_loss: 0.078501 generator_loss: 11.662182 discriminator_loss:
0.475826
epoch: 610 autoencoder_loss: 0.079953 generator_loss: 13.581095 discriminator_loss:
0.435839
epoch: 611 autoencoder_loss: 0.081714 generator_loss: 14.368043 discriminator_loss:
0.434803
epoch: 612 autoencoder_loss: 0.082338 generator_loss: 14.864283 discriminator_loss:
0.267342
epoch: 613 autoencoder_loss: 0.082246 generator_loss: 12.978282 discriminator_loss:
0.278576
epoch: 614 autoencoder_loss: 0.079192 generator_loss: 12.199100 discriminator_loss:
0.444635
epoch: 615 autoencoder_loss: 0.075253 generator_loss: 13.866789 discriminator_loss:
0.284511
epoch: 616 autoencoder_loss: 0.071643 generator_loss: 14.786118 discriminator_loss:
0.412661
```

```
epoch: 617 autoencoder_loss: 0.070811 generator_loss: 16.237370 discriminator_loss:
0.318071
epoch: 618 autoencoder_loss: 0.072508 generator_loss: 16.272779 discriminator_loss:
0.256236
epoch: 619 autoencoder_loss: 0.074420 generator_loss: 15.653273 discriminator_loss:
0.283708
epoch: 620 autoencoder_loss: 0.074578 generator_loss: 13.056860 discriminator_loss:
0.327348
epoch: 621 autoencoder_loss: 0.072385 generator_loss: 14.844938 discriminator_loss:
0.261012
epoch: 622 autoencoder_loss: 0.069990 generator_loss: 16.418427 discriminator_loss:
0.209470
epoch: 623 autoencoder_loss: 0.069082 generator_loss: 12.988346 discriminator_loss:
0.723641
epoch: 624 autoencoder_loss: 0.070205 generator_loss: 13.912025 discriminator_loss:
0.330004
epoch: 625 autoencoder_loss: 0.072234 generator_loss: 15.730013 discriminator_loss:
0.384162
epoch: 626 autoencoder_loss: 0.073236 generator_loss: 16.837549 discriminator_loss:
0.208104
epoch: 627 autoencoder_loss: 0.073253 generator_loss: 13.470787 discriminator_loss:
0.331437
epoch: 628 autoencoder_loss: 0.071761 generator_loss: 14.683713 discriminator_loss:
0.310124
epoch: 629 autoencoder_loss: 0.070288 generator_loss: 14.600532 discriminator_loss:
0.235719
epoch: 630 autoencoder_loss: 0.069706 generator_loss: 12.387827 discriminator_loss:
0.298455
epoch: 631 autoencoder_loss: 0.069975 generator_loss: 13.855122 discriminator_loss:
0.283961
epoch: 632 autoencoder_loss: 0.070541 generator_loss: 16.280048 discriminator_loss:
0.232142
epoch: 633 autoencoder_loss: 0.071049 generator_loss: 16.385208 discriminator_loss:
0.316503
epoch: 634 autoencoder_loss: 0.070994 generator_loss: 15.029406 discriminator_loss:
0.515420
epoch: 635 autoencoder_loss: 0.070651 generator_loss: 15.926594 discriminator_loss:
0.332523
epoch: 636 autoencoder_loss: 0.070031 generator_loss: 16.743605 discriminator_loss:
0.363051
epoch: 637 autoencoder_loss: 0.069536 generator_loss: 16.189484 discriminator_loss:
0.228473
epoch: 638 autoencoder_loss: 0.069365 generator_loss: 16.282787 discriminator_loss:
0.351164
epoch: 639 autoencoder_loss: 0.069273 generator_loss: 16.646208 discriminator_loss:
0.172737
epoch: 640 autoencoder_loss: 0.069151 generator_loss: 15.047774 discriminator_loss:
0.224161
epoch: 641 autoencoder_loss: 0.068842 generator_loss: 15.790892 discriminator_loss:
0.171047
epoch: 642 autoencoder_loss: 0.068525 generator_loss: 13.797670 discriminator_loss:
0.153559
epoch: 643 autoencoder_loss: 0.068199 generator_loss: 15.433262 discriminator_loss:
0.130326
epoch: 644 autoencoder_loss: 0.067871 generator_loss: 16.707890 discriminator_loss:
0.111286
```

```
epoch: 645 autoencoder_loss: 0.067830 generator_loss: 17.068523 discriminator_loss:
0.109375
epoch: 646 autoencoder_loss: 0.067875 generator_loss: 13.921291 discriminator_loss:
0.186162
epoch: 647 autoencoder_loss: 0.068612 generator_loss: 12.961388 discriminator_loss:
0.126145
epoch: 648 autoencoder_loss: 0.069622 generator_loss: 13.174569 discriminator_loss:
0.143536
epoch: 649 autoencoder_loss: 0.071042 generator_loss: 15.099929 discriminator_loss:
0.117351
epoch: 650 autoencoder_loss: 0.072309 generator_loss: 11.244114 discriminator_loss:
0.371287
epoch: 651 autoencoder_loss: 0.073636 generator_loss: 11.392897 discriminator_loss:
0.453911
epoch: 652 autoencoder_loss: 0.073756 generator_loss: 13.936908 discriminator_loss:
0.141065
epoch: 653 autoencoder_loss: 0.072323 generator_loss: 14.644590 discriminator_loss:
0.147143
epoch: 654 autoencoder_loss: 0.069270 generator_loss: 15.397335 discriminator_loss:
0.141575
epoch: 655 autoencoder_loss: 0.066421 generator_loss: 14.899180 discriminator_loss:
0.140270
epoch: 656 autoencoder_loss: 0.065136 generator_loss: 15.217594 discriminator_loss:
0.195194
epoch: 657 autoencoder_loss: 0.065696 generator_loss: 16.332048 discriminator_loss:
0.078414
epoch: 658 autoencoder_loss: 0.067107 generator_loss: 15.311483 discriminator_loss:
0.123307
epoch: 659 autoencoder_loss: 0.067981 generator_loss: 14.363897 discriminator_loss:
0.103007
epoch: 660 autoencoder_loss: 0.068042 generator_loss: 14.839053 discriminator_loss:
0.086741
epoch: 661 autoencoder_loss: 0.067412 generator_loss: 12.841235 discriminator_loss:
0.465255
epoch: 662 autoencoder_loss: 0.066754 generator_loss: 14.512779 discriminator_loss:
0.247935
epoch: 663 autoencoder_loss: 0.066569 generator_loss: 13.022181 discriminator_loss:
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epoch: 664 autoencoder_loss: 0.067359 generator_loss: 13.453383 discriminator_loss:
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epoch: 665 autoencoder_loss: 0.068311 generator_loss: 13.178621 discriminator_loss:
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epoch: 666 autoencoder_loss: 0.069372 generator_loss: 17.095703 discriminator_loss:
0.133975
epoch: 667 autoencoder_loss: 0.070199 generator_loss: 14.495762 discriminator_loss:
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epoch: 668 autoencoder_loss: 0.070342 generator_loss: 17.151274 discriminator_loss:
0.215834
epoch: 669 autoencoder_loss: 0.070112 generator_loss: 16.662739 discriminator_loss:
0.141397
epoch: 670 autoencoder_loss: 0.069162 generator_loss: 16.903505 discriminator_loss:
0.129032
epoch: 671 autoencoder_loss: 0.067862 generator_loss: 15.337229 discriminator_loss:
0.316159
epoch: 672 autoencoder_loss: 0.066614 generator_loss: 14.601984 discriminator_loss:
0.172401
```

```
epoch: 673 autoencoder_loss: 0.065710 generator_loss: 15.497625 discriminator_loss:
0.135287
epoch: 674 autoencoder_loss: 0.065188 generator_loss: 16.426291 discriminator_loss:
0.152761
epoch: 675 autoencoder_loss: 0.065141 generator_loss: 15.868993 discriminator_loss:
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epoch: 676 autoencoder_loss: 0.065274 generator_loss: 14.485666 discriminator_loss:
0.296345
epoch: 677 autoencoder_loss: 0.065131 generator_loss: 14.724613 discriminator_loss:
0.220917
epoch: 678 autoencoder_loss: 0.064944 generator_loss: 14.255849 discriminator_loss:
0.282788
epoch: 679 autoencoder_loss: 0.064930 generator_loss: 15.644306 discriminator_loss:
0.252903
epoch: 680 autoencoder_loss: 0.064998 generator_loss: 15.082293 discriminator_loss:
0.419466
epoch: 681 autoencoder_loss: 0.064731 generator_loss: 18.505285 discriminator_loss:
0.161403
epoch: 682 autoencoder_loss: 0.064100 generator_loss: 17.916849 discriminator_loss:
0.186694
epoch: 683 autoencoder_loss: 0.063331 generator_loss: 16.352219 discriminator_loss:
0.127489
epoch: 684 autoencoder_loss: 0.062776 generator_loss: 16.057734 discriminator_loss:
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epoch: 685 autoencoder_loss: 0.062472 generator_loss: 17.095165 discriminator_loss:
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epoch: 686 autoencoder_loss: 0.062523 generator_loss: 15.039213 discriminator_loss:
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epoch: 687 autoencoder_loss: 0.062873 generator_loss: 17.249290 discriminator_loss:
0.053251
epoch: 688 autoencoder_loss: 0.062999 generator_loss: 17.331985 discriminator_loss:
0.070362
epoch: 689 autoencoder_loss: 0.063391 generator_loss: 17.843405 discriminator_loss:
0.074712
epoch: 690 autoencoder_loss: 0.063372 generator_loss: 17.238762 discriminator_loss:
0.236571
epoch: 691 autoencoder_loss: 0.063082 generator_loss: 16.132242 discriminator_loss:
0.084384
epoch: 692 autoencoder_loss: 0.062884 generator_loss: 15.802639 discriminator_loss:
0.131141
epoch: 693 autoencoder_loss: 0.063062 generator_loss: 13.665662 discriminator_loss:
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epoch: 694 autoencoder_loss: 0.063767 generator_loss: 16.748030 discriminator_loss:
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epoch: 695 autoencoder_loss: 0.064660 generator_loss: 15.884250 discriminator_loss:
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epoch: 696 autoencoder_loss: 0.065803 generator_loss: 15.682688 discriminator_loss:
0.080797
epoch: 697 autoencoder_loss: 0.067044 generator_loss: 17.760918 discriminator_loss:
0.054157
epoch: 698 autoencoder_loss: 0.067721 generator_loss: 14.159277 discriminator_loss:
0.804320
epoch: 699 autoencoder_loss: 0.067874 generator_loss: 18.988861 discriminator_loss:
0.424322
epoch: 700 autoencoder_loss: 0.067997 generator_loss: 19.806391 discriminator_loss:
0.280626
```

```
epoch: 701 autoencoder_loss: 0.068887 generator_loss: 18.873896 discriminator_loss:
0.160901
epoch: 702 autoencoder_loss: 0.071188 generator_loss: 18.494801 discriminator_loss:
0.055861
epoch: 703 autoencoder_loss: 0.073024 generator_loss: 18.582306 discriminator_loss:
0.042113
epoch: 704 autoencoder_loss: 0.073184 generator_loss: 14.865744 discriminator_loss:
0.215652
epoch: 705 autoencoder_loss: 0.073077 generator_loss: 17.514772 discriminator_loss:
0.501586
epoch: 706 autoencoder_loss: 0.073004 generator_loss: 14.438824 discriminator_loss:
0.091525
epoch: 707 autoencoder_loss: 0.073845 generator_loss: 15.058363 discriminator_loss:
0.057314
epoch: 708 autoencoder_loss: 0.073865 generator_loss: 19.166779 discriminator_loss:
0.066886
epoch: 709 autoencoder_loss: 0.073003 generator_loss: 15.009143 discriminator_loss:
0.248917
epoch: 710 autoencoder_loss: 0.070595 generator_loss: 17.356703 discriminator_loss:
0.186547
epoch: 711 autoencoder_loss: 0.068454 generator_loss: 17.124292 discriminator_loss:
0.134896
epoch: 712 autoencoder_loss: 0.067956 generator_loss: 18.097589 discriminator_loss:
0.219751
epoch: 713 autoencoder_loss: 0.068737 generator_loss: 19.580826 discriminator_loss:
0.161191
epoch: 714 autoencoder_loss: 0.069713 generator_loss: 17.154684 discriminator_loss:
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epoch: 715 autoencoder_loss: 0.069451 generator_loss: 19.675144 discriminator_loss:
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epoch: 716 autoencoder_loss: 0.068241 generator_loss: 17.075008 discriminator_loss:
0.203398
epoch: 717 autoencoder_loss: 0.066750 generator_loss: 18.063868 discriminator_loss:
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epoch: 718 autoencoder_loss: 0.065787 generator_loss: 22.717161 discriminator_loss:
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epoch: 719 autoencoder_loss: 0.065193 generator_loss: 21.261070 discriminator_loss:
0.175175
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epoch: 721 autoencoder_loss: 0.065289 generator_loss: 18.713663 discriminator_loss:
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epoch: 722 autoencoder_loss: 0.065766 generator_loss: 18.546686 discriminator_loss:
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epoch: 723 autoencoder_loss: 0.066173 generator_loss: 17.809343 discriminator_loss:
0.075746
epoch: 724 autoencoder_loss: 0.066229 generator_loss: 17.275707 discriminator_loss:
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epoch: 725 autoencoder_loss: 0.067480 generator_loss: 18.719025 discriminator_loss:
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epoch: 726 autoencoder_loss: 0.069511 generator_loss: 19.194664 discriminator_loss:
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epoch: 727 autoencoder_loss: 0.072769 generator_loss: 18.543114 discriminator_loss:
0.061144
epoch: 728 autoencoder_loss: 0.075517 generator_loss: 20.414734 discriminator_loss:
0.288661
```

```
epoch: 729 autoencoder_loss: 0.079288 generator_loss: 23.845915 discriminator_loss:
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epoch: 733 autoencoder_loss: 0.095776 generator_loss: 24.897087 discriminator_loss:
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epoch: 735 autoencoder_loss: 0.089796 generator_loss: 20.593618 discriminator_loss:
0.122633
epoch: 736 autoencoder_loss: 0.087574 generator_loss: 21.571524 discriminator_loss:
0.617007
epoch: 737 autoencoder_loss: 0.087480 generator_loss: 20.503115 discriminator_loss:
0.052762
epoch: 738 autoencoder_loss: 0.088785 generator_loss: 19.720390 discriminator_loss:
0.490306
epoch: 739 autoencoder_loss: 0.091283 generator_loss: 19.219414 discriminator_loss:
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0.091218
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epoch: 742 autoencoder_loss: 0.099243 generator_loss: 20.566959 discriminator_loss:
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epoch: 743 autoencoder_loss: 0.090756 generator_loss: 20.827686 discriminator_loss:
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epoch: 746 autoencoder_loss: 0.082429 generator_loss: 18.504349 discriminator_loss:
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epoch: 748 autoencoder_loss: 0.079320 generator_loss: 14.524347 discriminator_loss:
0.892341
epoch: 749 autoencoder_loss: 0.074237 generator_loss: 17.398605 discriminator_loss:
0.182889
epoch: 750 autoencoder_loss: 0.073846 generator_loss: 18.419111 discriminator_loss:
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epoch: 751 autoencoder_loss: 0.074537 generator_loss: 14.069874 discriminator_loss:
0.233342
epoch: 752 autoencoder_loss: 0.071560 generator_loss: 18.468365 discriminator_loss:
0.090171
epoch: 753 autoencoder_loss: 0.068786 generator_loss: 17.061302 discriminator_loss:
0.125227
epoch: 754 autoencoder_loss: 0.070024 generator_loss: 16.771725 discriminator_loss:
0.145804
epoch: 755 autoencoder_loss: 0.072771 generator_loss: 17.568363 discriminator_loss:
0.714475
epoch: 756 autoencoder_loss: 0.072257 generator_loss: 19.531836 discriminator_loss:
0.327645
```

```
epoch: 757 autoencoder_loss: 0.070019 generator_loss: 19.237427 discriminator_loss:
0.421536
epoch: 758 autoencoder_loss: 0.068397 generator_loss: 19.693619 discriminator_loss:
0.215608
epoch: 759 autoencoder_loss: 0.066986 generator_loss: 19.337326 discriminator_loss:
0.147006
epoch: 760 autoencoder_loss: 0.065324 generator_loss: 16.663853 discriminator_loss:
0.130793
epoch: 761 autoencoder_loss: 0.065169 generator_loss: 17.030144 discriminator_loss:
0.074629
epoch: 762 autoencoder_loss: 0.065981 generator_loss: 17.414394 discriminator_loss:
0.095654
epoch: 763 autoencoder_loss: 0.065705 generator_loss: 16.006834 discriminator_loss:
0.155374
epoch: 764 autoencoder_loss: 0.064926 generator_loss: 17.474129 discriminator_loss:
0.037289
epoch: 765 autoencoder_loss: 0.064672 generator_loss: 16.303957 discriminator_loss:
0.049835
epoch: 766 autoencoder_loss: 0.064438 generator_loss: 15.851707 discriminator_loss:
0.393012
epoch: 767 autoencoder_loss: 0.062945 generator_loss: 15.700521 discriminator_loss:
0.261235
epoch: 768 autoencoder_loss: 0.061887 generator_loss: 15.547457 discriminator_loss:
0.147372
epoch: 769 autoencoder_loss: 0.061420 generator_loss: 16.234900 discriminator_loss:
0.085342
epoch: 770 autoencoder_loss: 0.061657 generator_loss: 14.196630 discriminator_loss:
0.842339
epoch: 771 autoencoder_loss: 0.061416 generator_loss: 16.790787 discriminator_loss:
0.223599
epoch: 772 autoencoder_loss: 0.061144 generator_loss: 15.958424 discriminator_loss:
0.435401
epoch: 773 autoencoder_loss: 0.061469 generator_loss: 17.707899 discriminator_loss:
0.541426
epoch: 774 autoencoder_loss: 0.061855 generator_loss: 20.065241 discriminator_loss:
0.199089
epoch: 775 autoencoder_loss: 0.061862 generator_loss: 18.147705 discriminator_loss:
0.591358
epoch: 776 autoencoder_loss: 0.062185 generator_loss: 17.863960 discriminator_loss:
0.843329
epoch: 777 autoencoder_loss: 0.062055 generator_loss: 14.842016 discriminator_loss:
0.483112
epoch: 778 autoencoder_loss: 0.061423 generator_loss: 17.562160 discriminator_loss:
0.200327
epoch: 779 autoencoder_loss: 0.060977 generator_loss: 16.163301 discriminator_loss:
0.176793
epoch: 780 autoencoder_loss: 0.060588 generator_loss: 14.135621 discriminator_loss:
0.240389
epoch: 781 autoencoder_loss: 0.060131 generator_loss: 15.569513 discriminator_loss:
0.254954
epoch: 782 autoencoder_loss: 0.059709 generator_loss: 13.632267 discriminator_loss:
0.224878
epoch: 783 autoencoder_loss: 0.060223 generator_loss: 14.314097 discriminator_loss:
0.834400
epoch: 784 autoencoder_loss: 0.060917 generator_loss: 14.855645 discriminator_loss:
0.406054
```

```
epoch: 785 autoencoder_loss: 0.061519 generator_loss: 14.181159 discriminator_loss:
0.763056
epoch: 786 autoencoder_loss: 0.061913 generator_loss: 15.232474 discriminator_loss:
0.425588
epoch: 787 autoencoder_loss: 0.061912 generator_loss: 15.643256 discriminator_loss:
0.322941
epoch: 788 autoencoder_loss: 0.061493 generator_loss: 13.592009 discriminator_loss:
0.537991
epoch: 789 autoencoder_loss: 0.061846 generator_loss: 14.930542 discriminator_loss:
1.069971
epoch: 790 autoencoder_loss: 0.062909 generator_loss: 15.788219 discriminator_loss:
0.282893
epoch: 791 autoencoder_loss: 0.064677 generator_loss: 14.814553 discriminator_loss:
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epoch: 792 autoencoder_loss: 0.066448 generator_loss: 16.383568 discriminator_loss:
0.243046
epoch: 793 autoencoder_loss: 0.068569 generator_loss: 16.374390 discriminator_loss:
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epoch: 794 autoencoder_loss: 0.071865 generator_loss: 15.015816 discriminator_loss:
0.273251
epoch: 795 autoencoder_loss: 0.074117 generator_loss: 13.860273 discriminator_loss:
0.280498
epoch: 796 autoencoder_loss: 0.075060 generator_loss: 16.030531 discriminator_loss:
0.329499
epoch: 797 autoencoder_loss: 0.072437 generator_loss: 16.837748 discriminator_loss:
0.131810
epoch: 798 autoencoder_loss: 0.069060 generator_loss: 16.085894 discriminator_loss:
0.126133
epoch: 799 autoencoder_loss: 0.064492 generator_loss: 13.648181 discriminator_loss:
0.234467
epoch: 800 autoencoder_loss: 0.063853 generator_loss: 14.668413 discriminator_loss:
0.225045
epoch: 801 autoencoder_loss: 0.066609 generator_loss: 15.367311 discriminator_loss:
0.387430
epoch: 802 autoencoder_loss: 0.068049 generator_loss: 17.614489 discriminator_loss:
0.077923
epoch: 803 autoencoder_loss: 0.066280 generator_loss: 14.597195 discriminator_loss:
0.068489
epoch: 804 autoencoder_loss: 0.061757 generator_loss: 15.251633 discriminator_loss:
0.118510
epoch: 805 autoencoder_loss: 0.058429 generator_loss: 14.575501 discriminator_loss:
0.152283
epoch: 806 autoencoder_loss: 0.057997 generator_loss: 14.685111 discriminator_loss:
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epoch: 807 autoencoder_loss: 0.059181 generator_loss: 19.464960 discriminator_loss:
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epoch: 808 autoencoder_loss: 0.060065 generator_loss: 15.664850 discriminator_loss:
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epoch: 809 autoencoder_loss: 0.059676 generator_loss: 15.849105 discriminator_loss:
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epoch: 810 autoencoder_loss: 0.059267 generator_loss: 17.389374 discriminator_loss:
0.214662
epoch: 811 autoencoder_loss: 0.058999 generator_loss: 15.361382 discriminator_loss:
0.143273
epoch: 812 autoencoder_loss: 0.059768 generator_loss: 16.194471 discriminator_loss:
0.356864
```

```
epoch: 813 autoencoder_loss: 0.060465 generator_loss: 15.940619 discriminator_loss:
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epoch: 814 autoencoder_loss: 0.060199 generator_loss: 15.653927 discriminator_loss:
0.121828
epoch: 815 autoencoder_loss: 0.059247 generator_loss: 15.911175 discriminator_loss:
0.127347
epoch: 816 autoencoder_loss: 0.058139 generator_loss: 13.692020 discriminator_loss:
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epoch: 817 autoencoder_loss: 0.057647 generator_loss: 15.227281 discriminator_loss:
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epoch: 818 autoencoder_loss: 0.057547 generator_loss: 16.057041 discriminator_loss:
0.143279
epoch: 819 autoencoder_loss: 0.057360 generator_loss: 18.148026 discriminator_loss:
0.140131
epoch: 820 autoencoder_loss: 0.057104 generator_loss: 15.954365 discriminator_loss:
0.154047
epoch: 821 autoencoder_loss: 0.056870 generator_loss: 14.638216 discriminator_loss:
0.187626
epoch: 822 autoencoder_loss: 0.056623 generator_loss: 14.887444 discriminator_loss:
0.187367
epoch: 823 autoencoder_loss: 0.056680 generator_loss: 15.840288 discriminator_loss:
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epoch: 824 autoencoder_loss: 0.057198 generator_loss: 14.844419 discriminator_loss:
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epoch: 825 autoencoder_loss: 0.057858 generator_loss: 15.206830 discriminator_loss:
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epoch: 826 autoencoder_loss: 0.058186 generator_loss: 16.614456 discriminator_loss:
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epoch: 827 autoencoder_loss: 0.058210 generator_loss: 15.759578 discriminator_loss:
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epoch: 828 autoencoder_loss: 0.057548 generator_loss: 14.862835 discriminator_loss:
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epoch: 829 autoencoder_loss: 0.056822 generator_loss: 16.231394 discriminator_loss:
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epoch: 830 autoencoder_loss: 0.056577 generator_loss: 14.753769 discriminator_loss:
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epoch: 831 autoencoder_loss: 0.056492 generator_loss: 13.841604 discriminator_loss:
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epoch: 832 autoencoder_loss: 0.056531 generator_loss: 16.482393 discriminator_loss:
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epoch: 833 autoencoder_loss: 0.055925 generator_loss: 15.884315 discriminator_loss:
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epoch: 834 autoencoder_loss: 0.055241 generator_loss: 13.950912 discriminator_loss:
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epoch: 835 autoencoder_loss: 0.054864 generator_loss: 15.385357 discriminator_loss:
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epoch: 836 autoencoder_loss: 0.054365 generator_loss: 14.926683 discriminator_loss:
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epoch: 837 autoencoder_loss: 0.054032 generator_loss: 15.117376 discriminator_loss:
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epoch: 838 autoencoder_loss: 0.053826 generator_loss: 17.852695 discriminator_loss:
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epoch: 839 autoencoder_loss: 0.053434 generator_loss: 15.540282 discriminator_loss:
0.165877
epoch: 840 autoencoder_loss: 0.053379 generator_loss: 16.063770 discriminator_loss:
0.142399
```

```
epoch: 841 autoencoder_loss: 0.053424 generator_loss: 16.432821 discriminator_loss:
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epoch: 842 autoencoder_loss: 0.053303 generator_loss: 15.199399 discriminator_loss:
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epoch: 843 autoencoder_loss: 0.053747 generator_loss: 16.632208 discriminator_loss:
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epoch: 844 autoencoder_loss: 0.054110 generator_loss: 15.455679 discriminator_loss:
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epoch: 845 autoencoder_loss: 0.053561 generator_loss: 15.087264 discriminator_loss:
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epoch: 846 autoencoder_loss: 0.053072 generator_loss: 17.223881 discriminator_loss:
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epoch: 847 autoencoder_loss: 0.053407 generator_loss: 15.160141 discriminator_loss:
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epoch: 848 autoencoder_loss: 0.053735 generator_loss: 17.042465 discriminator_loss:
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epoch: 849 autoencoder_loss: 0.054165 generator_loss: 14.154078 discriminator_loss:
0.158105
epoch: 850 autoencoder_loss: 0.054716 generator_loss: 14.939350 discriminator_loss:
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epoch: 851 autoencoder_loss: 0.055049 generator_loss: 15.409118 discriminator_loss:
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epoch: 852 autoencoder_loss: 0.055753 generator_loss: 14.781662 discriminator_loss:
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epoch: 853 autoencoder_loss: 0.056925 generator_loss: 15.779629 discriminator_loss:
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epoch: 854 autoencoder_loss: 0.057983 generator_loss: 15.271424 discriminator_loss:
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epoch: 855 autoencoder_loss: 0.059294 generator_loss: 16.813787 discriminator_loss:
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epoch: 856 autoencoder_loss: 0.060348 generator_loss: 15.390837 discriminator_loss:
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epoch: 857 autoencoder_loss: 0.061499 generator_loss: 15.241676 discriminator_loss:
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epoch: 858 autoencoder_loss: 0.063047 generator_loss: 16.723358 discriminator_loss:
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epoch: 859 autoencoder_loss: 0.063698 generator_loss: 16.091726 discriminator_loss:
0.353907
epoch: 860 autoencoder_loss: 0.063165 generator_loss: 14.584288 discriminator_loss:
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epoch: 861 autoencoder_loss: 0.063706 generator_loss: 15.186034 discriminator_loss:
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epoch: 862 autoencoder_loss: 0.066308 generator_loss: 14.982809 discriminator_loss:
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epoch: 863 autoencoder_loss: 0.069929 generator_loss: 15.210155 discriminator_loss:
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epoch: 864 autoencoder_loss: 0.074411 generator_loss: 16.576527 discriminator_loss:
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epoch: 865 autoencoder_loss: 0.075871 generator_loss: 15.040211 discriminator_loss:
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epoch: 866 autoencoder_loss: 0.074781 generator_loss: 15.744574 discriminator_loss:
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epoch: 867 autoencoder_loss: 0.068624 generator_loss: 12.888815 discriminator_loss:
0.280066
epoch: 868 autoencoder_loss: 0.063517 generator_loss: 14.149390 discriminator_loss:
0.320016
```

```
epoch: 869 autoencoder_loss: 0.062474 generator_loss: 14.002612 discriminator_loss:
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epoch: 870 autoencoder_loss: 0.064777 generator_loss: 11.930339 discriminator_loss:
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epoch: 871 autoencoder_loss: 0.066732 generator_loss: 14.795507 discriminator_loss:
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epoch: 872 autoencoder_loss: 0.064749 generator_loss: 14.114117 discriminator_loss:
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epoch: 874 autoencoder_loss: 0.058232 generator_loss: 14.382530 discriminator_loss:
0.184234
epoch: 875 autoencoder_loss: 0.057839 generator_loss: 13.786905 discriminator_loss:
0.272233
epoch: 876 autoencoder_loss: 0.058789 generator_loss: 13.844080 discriminator_loss:
0.273122
epoch: 877 autoencoder_loss: 0.058601 generator_loss: 14.448226 discriminator_loss:
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epoch: 878 autoencoder_loss: 0.057120 generator_loss: 14.677015 discriminator_loss:
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epoch: 880 autoencoder_loss: 0.054956 generator_loss: 14.674265 discriminator_loss:
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epoch: 882 autoencoder_loss: 0.057577 generator_loss: 16.064327 discriminator_loss:
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epoch: 883 autoencoder_loss: 0.056881 generator_loss: 15.114573 discriminator_loss:
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epoch: 884 autoencoder_loss: 0.055035 generator_loss: 13.573242 discriminator_loss:
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epoch: 885 autoencoder_loss: 0.053663 generator_loss: 13.221228 discriminator_loss:
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epoch: 886 autoencoder_loss: 0.052922 generator_loss: 11.862740 discriminator_loss:
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epoch: 887 autoencoder_loss: 0.053028 generator_loss: 11.461973 discriminator_loss:
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epoch: 888 autoencoder_loss: 0.053376 generator_loss: 13.168760 discriminator_loss:
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epoch: 889 autoencoder_loss: 0.053876 generator_loss: 17.350239 discriminator_loss:
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epoch: 893 autoencoder_loss: 0.052580 generator_loss: 15.707945 discriminator_loss:
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epoch: 894 autoencoder_loss: 0.052390 generator_loss: 15.329653 discriminator_loss:
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epoch: 895 autoencoder_loss: 0.052149 generator_loss: 12.950553 discriminator_loss:
0.171981
epoch: 896 autoencoder_loss: 0.052508 generator_loss: 13.846025 discriminator_loss:
0.233517
```

```
epoch: 897 autoencoder_loss: 0.053513 generator_loss: 13.320828 discriminator_loss:
0.191968
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epoch: 901 autoencoder_loss: 0.052799 generator_loss: 13.814493 discriminator_loss:
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epoch: 902 autoencoder_loss: 0.053997 generator_loss: 14.395107 discriminator_loss:
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epoch: 903 autoencoder_loss: 0.055683 generator_loss: 16.890390 discriminator_loss:
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epoch: 905 autoencoder_loss: 0.058165 generator_loss: 16.059658 discriminator_loss:
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epoch: 906 autoencoder_loss: 0.059068 generator_loss: 13.374134 discriminator_loss:
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epoch: 911 autoencoder_loss: 0.052914 generator_loss: 16.547466 discriminator_loss:
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epoch: 913 autoencoder_loss: 0.054861 generator_loss: 15.374603 discriminator_loss:
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epoch: 923 autoencoder_loss: 0.052354 generator_loss: 14.128700 discriminator_loss:
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epoch: 924 autoencoder_loss: 0.051948 generator_loss: 15.558346 discriminator_loss:
0.298396
```

```
epoch: 925 autoencoder_loss: 0.050726 generator_loss: 15.382475 discriminator_loss:
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epoch: 926 autoencoder_loss: 0.050077 generator_loss: 17.370911 discriminator_loss:
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epoch: 929 autoencoder_loss: 0.050816 generator_loss: 17.024353 discriminator_loss:
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epoch: 930 autoencoder_loss: 0.051269 generator_loss: 17.676855 discriminator_loss:
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epoch: 931 autoencoder_loss: 0.051196 generator_loss: 16.948095 discriminator_loss:
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epoch: 932 autoencoder_loss: 0.050776 generator_loss: 15.616925 discriminator_loss:
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epoch: 933 autoencoder_loss: 0.050198 generator_loss: 15.118335 discriminator_loss:
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epoch: 934 autoencoder_loss: 0.049859 generator_loss: 16.473726 discriminator_loss:
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epoch: 949 autoencoder_loss: 0.049055 generator_loss: 17.723000 discriminator_loss:
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epoch: 950 autoencoder_loss: 0.047904 generator_loss: 15.875943 discriminator_loss:
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epoch: 951 autoencoder_loss: 0.049176 generator_loss: 16.324223 discriminator_loss:
0.126537
epoch: 952 autoencoder_loss: 0.050813 generator_loss: 15.936161 discriminator_loss:
0.092562
```

```
epoch: 953 autoencoder_loss: 0.050908 generator_loss: 15.232858 discriminator_loss:
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epoch: 973 autoencoder_loss: 0.046089 generator_loss: 17.634468 discriminator_loss:
0.102615
epoch: 974 autoencoder_loss: 0.045874 generator_loss: 18.072922 discriminator_loss:
0.078687
epoch: 975 autoencoder_loss: 0.045073 generator_loss: 17.318058 discriminator_loss:
0.118879
epoch: 976 autoencoder_loss: 0.044146 generator_loss: 17.423977 discriminator_loss:
0.129483
epoch: 977 autoencoder_loss: 0.043451 generator_loss: 14.879588 discriminator_loss:
0.218935
epoch: 978 autoencoder_loss: 0.043078 generator_loss: 14.569804 discriminator_loss:
0.137472
epoch: 979 autoencoder_loss: 0.043104 generator_loss: 16.811295 discriminator_loss:
0.123972
epoch: 980 autoencoder_loss: 0.043447 generator_loss: 15.307279 discriminator_loss:
0.104407
```

```
epoch: 981 autoencoder_loss: 0.044206 generator_loss: 14.073345 discriminator_loss:
0.184952
epoch: 982 autoencoder_loss: 0.044884 generator_loss: 15.876101 discriminator_loss:
0.119379
epoch: 983 autoencoder_loss: 0.045160 generator_loss: 15.587395 discriminator_loss:
0.174823
epoch: 984 autoencoder_loss: 0.045437 generator_loss: 18.092518 discriminator_loss:
0.187934
epoch: 985 autoencoder_loss: 0.045474 generator_loss: 15.706432 discriminator_loss:
0.185020
epoch: 986 autoencoder_loss: 0.045973 generator_loss: 15.215614 discriminator_loss:
0.128260
epoch: 987 autoencoder_loss: 0.046373 generator_loss: 15.361901 discriminator_loss:
0.089491
epoch: 988 autoencoder_loss: 0.046271 generator_loss: 16.476450 discriminator_loss:
0.087951
epoch: 989 autoencoder_loss: 0.046060 generator_loss: 13.777429 discriminator_loss:
0.109918
epoch: 990 autoencoder_loss: 0.046226 generator_loss: 15.254262 discriminator_loss:
0.118250
epoch: 991 autoencoder_loss: 0.046972 generator_loss: 15.371204 discriminator_loss:
0.061283
epoch: 992 autoencoder_loss: 0.048342 generator_loss: 14.225782 discriminator_loss:
0.153128
epoch: 993 autoencoder_loss: 0.049844 generator_loss: 13.686548 discriminator_loss:
0.193842
epoch: 994 autoencoder_loss: 0.051621 generator_loss: 13.781805 discriminator_loss:
0.408623
epoch: 995 autoencoder_loss: 0.053279 generator_loss: 16.338282 discriminator_loss:
0.231535
epoch: 996 autoencoder_loss: 0.054770 generator_loss: 16.314550 discriminator_loss:
0.272033
epoch: 997 autoencoder_loss: 0.053881 generator_loss: 16.919735 discriminator_loss:
0.281163
epoch: 998 autoencoder_loss: 0.051776 generator_loss: 16.384466 discriminator_loss:
0.273959
epoch: 999 autoencoder_loss: 0.049111 generator_loss: 15.881330 discriminator_loss:
0.245338
epoch: 1000 autoencoder_loss: 0.047488 generator_loss: 18.631441 discriminator_loss:
0.123729
epoch: 1001 autoencoder_loss: 0.047374 generator_loss: 14.474933 discriminator_loss:
0.075066
epoch: 1002 autoencoder_loss: 0.048050 generator_loss: 13.669133 discriminator_loss:
0.112449
epoch: 1003 autoencoder_loss: 0.048286 generator_loss: 13.759159 discriminator_loss:
0.532708
epoch: 1004 autoencoder_loss: 0.047597 generator_loss: 14.587902 discriminator_loss:
0.723151
epoch: 1005 autoencoder_loss: 0.046718 generator_loss: 14.137794 discriminator_loss:
0.570172
epoch: 1006 autoencoder_loss: 0.046900 generator_loss: 16.594906 discriminator_loss:
0.541505
epoch: 1007 autoencoder_loss: 0.048255 generator_loss: 17.629854 discriminator_loss:
0.576590
epoch: 1008 autoencoder_loss: 0.049705 generator_loss: 19.145319 discriminator_loss:
0.602539
```

```
epoch: 1009 autoencoder_loss: 0.048761 generator_loss: 20.741673 discriminator_loss:
0.603660
epoch: 1010 autoencoder_loss: 0.046464 generator_loss: 18.973722 discriminator_loss:
0.581958
epoch: 1011 autoencoder_loss: 0.044562 generator_loss: 19.164858 discriminator_loss:
0.547571
epoch: 1012 autoencoder_loss: 0.044198 generator_loss: 16.176271 discriminator_loss:
0.523442
epoch: 1013 autoencoder_loss: 0.044891 generator_loss: 19.275099 discriminator_loss:
0.461372
epoch: 1014 autoencoder_loss: 0.045078 generator_loss: 17.078869 discriminator_loss:
0.417136
epoch: 1015 autoencoder_loss: 0.044599 generator_loss: 17.648945 discriminator_loss:
0.355774
epoch: 1016 autoencoder_loss: 0.043932 generator_loss: 14.214248 discriminator_loss:
0.314931
epoch: 1017 autoencoder_loss: 0.043403 generator_loss: 15.003372 discriminator_loss:
0.274415
epoch: 1018 autoencoder_loss: 0.043531 generator_loss: 13.630821 discriminator_loss:
0.229041
epoch: 1019 autoencoder_loss: 0.043816 generator_loss: 12.385800 discriminator_loss:
0.234746
epoch: 1020 autoencoder_loss: 0.043819 generator_loss: 16.571810 discriminator_loss:
0.181063
epoch: 1021 autoencoder_loss: 0.043409 generator_loss: 14.015713 discriminator_loss:
0.232910
epoch: 1022 autoencoder_loss: 0.042848 generator_loss: 13.288586 discriminator_loss:
0.296057
epoch: 1023 autoencoder_loss: 0.042515 generator_loss: 16.346762 discriminator_loss:
0.188850
epoch: 1024 autoencoder_loss: 0.042368 generator_loss: 13.339322 discriminator_loss:
0.208332
epoch: 1025 autoencoder_loss: 0.042272 generator_loss: 14.900131 discriminator_loss:
0.166457
epoch: 1026 autoencoder_loss: 0.042118 generator_loss: 15.095720 discriminator_loss:
0.178615
epoch: 1027 autoencoder_loss: 0.042018 generator_loss: 14.567953 discriminator_loss:
0.224139
epoch: 1028 autoencoder_loss: 0.042193 generator_loss: 14.698368 discriminator_loss:
0.253910
epoch: 1029 autoencoder_loss: 0.042593 generator_loss: 14.445929 discriminator_loss:
0.290521
epoch: 1030 autoencoder_loss: 0.043169 generator_loss: 15.231362 discriminator_loss:
0.289028
epoch: 1031 autoencoder_loss: 0.043450 generator_loss: 14.808806 discriminator_loss:
0.300198
epoch: 1032 autoencoder_loss: 0.043350 generator_loss: 16.739695 discriminator_loss:
0.269044
epoch: 1033 autoencoder_loss: 0.043061 generator_loss: 16.308891 discriminator_loss:
0.251520
epoch: 1034 autoencoder_loss: 0.042767 generator_loss: 14.579311 discriminator_loss:
0.263754
epoch: 1035 autoencoder_loss: 0.042627 generator_loss: 13.942258 discriminator_loss:
0.271245
epoch: 1036 autoencoder_loss: 0.042573 generator_loss: 13.392548 discriminator_loss:
0.299865
```

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epoch: 1037 autoencoder_loss: 0.042447 generator_loss: 13.056362 discriminator_loss:
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epoch: 1038 autoencoder_loss: 0.042185 generator_loss: 12.311497 discriminator_loss:
0.296088
epoch: 1039 autoencoder_loss: 0.041785 generator_loss: 13.948152 discriminator_loss:
0.234264
epoch: 1040 autoencoder_loss: 0.041308 generator_loss: 12.697088 discriminator_loss:
0.250391
epoch: 1041 autoencoder_loss: 0.040851 generator_loss: 13.127625 discriminator_loss:
0.262678
epoch: 1042 autoencoder_loss: 0.040752 generator_loss: 13.113793 discriminator_loss:
0.334163
epoch: 1043 autoencoder_loss: 0.041064 generator_loss: 14.030107 discriminator_loss:
0.325906
epoch: 1044 autoencoder_loss: 0.041555 generator_loss: 15.371146 discriminator_loss:
0.262662
epoch: 1045 autoencoder_loss: 0.042106 generator_loss: 13.427695 discriminator_loss:
0.194409
epoch: 1046 autoencoder_loss: 0.042926 generator_loss: 14.055223 discriminator_loss:
0.345391
epoch: 1047 autoencoder_loss: 0.044346 generator_loss: 13.813430 discriminator_loss:
0.222453
epoch: 1048 autoencoder_loss: 0.046924 generator_loss: 14.874911 discriminator_loss:
0.221603
epoch: 1049 autoencoder_loss: 0.050622 generator_loss: 12.446323 discriminator_loss:
0.260307
epoch: 1050 autoencoder_loss: 0.055580 generator_loss: 12.167846 discriminator_loss:
0.291202
epoch: 1051 autoencoder_loss: 0.058421 generator_loss: 11.890709 discriminator_loss:
0.317985
epoch: 1052 autoencoder_loss: 0.058661 generator_loss: 14.808909 discriminator_loss:
0.264809
epoch: 1053 autoencoder_loss: 0.053766 generator_loss: 11.954660 discriminator_loss:
0.299593
epoch: 1054 autoencoder_loss: 0.047778 generator_loss: 14.786425 discriminator_loss:
0.221610
epoch: 1055 autoencoder_loss: 0.045512 generator_loss: 14.130915 discriminator_loss:
0.220832
epoch: 1056 autoencoder_loss: 0.046047 generator_loss: 14.712527 discriminator_loss:
0.225085
epoch: 1057 autoencoder_loss: 0.045733 generator_loss: 13.919089 discriminator_loss:
0.240086
epoch: 1058 autoencoder_loss: 0.043335 generator_loss: 14.118797 discriminator_loss:
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epoch: 1059 autoencoder_loss: 0.041976 generator_loss: 15.225491 discriminator_loss:
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epoch: 1060 autoencoder_loss: 0.043668 generator_loss: 15.303433 discriminator_loss:
0.235577
epoch: 1061 autoencoder_loss: 0.045440 generator_loss: 15.341194 discriminator_loss:
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epoch: 1062 autoencoder_loss: 0.044225 generator_loss: 14.247086 discriminator_loss:
0.240688
epoch: 1063 autoencoder_loss: 0.040838 generator_loss: 14.182116 discriminator_loss:
0.231028
epoch: 1064 autoencoder_loss: 0.038947 generator_loss: 14.691368 discriminator_loss:
0.224909
```

```
epoch: 1065 autoencoder_loss: 0.039632 generator_loss: 14.628809 discriminator_loss:
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epoch: 1066 autoencoder_loss: 0.040453 generator_loss: 13.512213 discriminator_loss:
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epoch: 1067 autoencoder_loss: 0.039830 generator_loss: 12.751714 discriminator_loss:
0.233120
epoch: 1068 autoencoder_loss: 0.038780 generator_loss: 13.158364 discriminator_loss:
0.216369
epoch: 1069 autoencoder_loss: 0.038843 generator_loss: 12.663257 discriminator_loss:
0.244676
epoch: 1070 autoencoder_loss: 0.039487 generator_loss: 14.317784 discriminator_loss:
0.240104
epoch: 1071 autoencoder_loss: 0.039252 generator_loss: 14.408914 discriminator_loss:
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epoch: 1072 autoencoder_loss: 0.038316 generator_loss: 13.725408 discriminator_loss:
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epoch: 1073 autoencoder_loss: 0.037815 generator_loss: 12.358124 discriminator_loss:
0.233819
epoch: 1074 autoencoder_loss: 0.038029 generator_loss: 14.627204 discriminator_loss:
0.223482
epoch: 1075 autoencoder_loss: 0.038172 generator_loss: 13.800532 discriminator_loss:
0.307628
epoch: 1076 autoencoder_loss: 0.037578 generator_loss: 13.501877 discriminator_loss:
0.229001
epoch: 1077 autoencoder_loss: 0.036828 generator_loss: 14.606772 discriminator_loss:
0.229444
epoch: 1078 autoencoder_loss: 0.036657 generator_loss: 13.244062 discriminator_loss:
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epoch: 1079 autoencoder_loss: 0.036957 generator_loss: 13.800476 discriminator_loss:
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epoch: 1080 autoencoder_loss: 0.036997 generator_loss: 13.495389 discriminator_loss:
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epoch: 1081 autoencoder_loss: 0.036538 generator_loss: 13.043324 discriminator_loss:
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epoch: 1082 autoencoder_loss: 0.036116 generator_loss: 13.717152 discriminator_loss:
0.210426
epoch: 1083 autoencoder_loss: 0.036229 generator_loss: 13.665534 discriminator_loss:
0.206048
epoch: 1084 autoencoder_loss: 0.036607 generator_loss: 13.058878 discriminator_loss:
0.229164
epoch: 1085 autoencoder_loss: 0.036786 generator_loss: 12.403074 discriminator_loss:
0.247334
epoch: 1086 autoencoder_loss: 0.036523 generator_loss: 13.850120 discriminator_loss:
0.236097
epoch: 1087 autoencoder_loss: 0.036166 generator_loss: 13.654971 discriminator_loss:
0.242020
epoch: 1088 autoencoder_loss: 0.035995 generator_loss: 13.633631 discriminator_loss:
0.237078
epoch: 1089 autoencoder_loss: 0.035964 generator_loss: 14.395849 discriminator_loss:
0.236124
epoch: 1090 autoencoder_loss: 0.035976 generator_loss: 12.647640 discriminator_loss:
0.268946
epoch: 1091 autoencoder_loss: 0.035876 generator_loss: 13.489869 discriminator_loss:
0.241859
epoch: 1092 autoencoder_loss: 0.035789 generator_loss: 13.828160 discriminator_loss:
0.254041
```

```
epoch: 1093 autoencoder_loss: 0.035813 generator_loss: 14.694688 discriminator_loss:
0.253315
epoch: 1094 autoencoder_loss: 0.035891 generator_loss: 15.305447 discriminator_loss:
0.248437
epoch: 1095 autoencoder_loss: 0.035900 generator_loss: 14.321122 discriminator_loss:
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epoch: 1096 autoencoder_loss: 0.035819 generator_loss: 14.434779 discriminator_loss:
0.233160
epoch: 1097 autoencoder_loss: 0.035797 generator_loss: 14.863462 discriminator_loss:
0.218252
epoch: 1098 autoencoder_loss: 0.035899 generator_loss: 12.698301 discriminator_loss:
0.241817
epoch: 1099 autoencoder_loss: 0.036095 generator_loss: 13.371352 discriminator_loss:
0.246883
epoch: 1100 autoencoder_loss: 0.036436 generator_loss: 12.540036 discriminator_loss:
0.242740
epoch: 1101 autoencoder_loss: 0.036845 generator_loss: 13.885931 discriminator_loss:
0.213639
epoch: 1102 autoencoder_loss: 0.037591 generator_loss: 12.924177 discriminator_loss:
0.188137
epoch: 1103 autoencoder_loss: 0.038550 generator_loss: 12.215826 discriminator_loss:
0.239629
epoch: 1104 autoencoder_loss: 0.040051 generator_loss: 13.646416 discriminator_loss:
0.229674
epoch: 1105 autoencoder_loss: 0.041612 generator_loss: 13.221019 discriminator_loss:
0.231892
epoch: 1106 autoencoder_loss: 0.043378 generator_loss: 12.792890 discriminator_loss:
0.190869
epoch: 1107 autoencoder_loss: 0.044064 generator_loss: 12.660483 discriminator_loss:
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epoch: 1108 autoencoder_loss: 0.043986 generator_loss: 12.951684 discriminator_loss:
0.163887
epoch: 1109 autoencoder_loss: 0.042081 generator_loss: 13.131801 discriminator_loss:
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epoch: 1110 autoencoder_loss: 0.039846 generator_loss: 16.054377 discriminator_loss:
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epoch: 1111 autoencoder_loss: 0.038026 generator_loss: 12.765171 discriminator_loss:
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epoch: 1112 autoencoder_loss: 0.037488 generator_loss: 14.033187 discriminator_loss:
0.217975
epoch: 1113 autoencoder_loss: 0.037693 generator_loss: 14.496655 discriminator_loss:
0.181499
epoch: 1114 autoencoder_loss: 0.038178 generator_loss: 14.377316 discriminator_loss:
0.160412
epoch: 1115 autoencoder_loss: 0.038384 generator_loss: 16.532385 discriminator_loss:
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epoch: 1116 autoencoder_loss: 0.038135 generator_loss: 13.809630 discriminator_loss:
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epoch: 1117 autoencoder_loss: 0.037540 generator_loss: 14.897271 discriminator_loss:
0.210688
epoch: 1118 autoencoder_loss: 0.036785 generator_loss: 16.366993 discriminator_loss:
0.201257
epoch: 1119 autoencoder_loss: 0.036277 generator_loss: 15.091105 discriminator_loss:
0.191280
epoch: 1120 autoencoder_loss: 0.036069 generator_loss: 14.695945 discriminator_loss:
0.167354
```

```
epoch: 1121 autoencoder_loss: 0.035966 generator_loss: 15.507158 discriminator_loss:
0.140703
epoch: 1122 autoencoder_loss: 0.035853 generator_loss: 14.059547 discriminator_loss:
0.176143
epoch: 1123 autoencoder_loss: 0.035564 generator_loss: 13.288987 discriminator_loss:
0.229317
epoch: 1124 autoencoder_loss: 0.035250 generator_loss: 15.808983 discriminator_loss:
0.188180
epoch: 1125 autoencoder_loss: 0.034923 generator_loss: 15.702312 discriminator_loss:
0.147720
epoch: 1126 autoencoder_loss: 0.034594 generator_loss: 14.709764 discriminator_loss:
0.225482
epoch: 1127 autoencoder_loss: 0.034369 generator_loss: 15.878343 discriminator_loss:
0.155544
epoch: 1128 autoencoder_loss: 0.034319 generator_loss: 13.204035 discriminator_loss:
0.208852
epoch: 1129 autoencoder_loss: 0.034451 generator_loss: 14.908338 discriminator_loss:
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epoch: 1130 autoencoder_loss: 0.034595 generator_loss: 14.299248 discriminator_loss:
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epoch: 1132 autoencoder_loss: 0.034493 generator_loss: 14.956117 discriminator_loss:
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epoch: 1133 autoencoder_loss: 0.034260 generator_loss: 13.540915 discriminator_loss:
0.221809
epoch: 1134 autoencoder_loss: 0.033983 generator_loss: 13.529495 discriminator_loss:
0.224223
epoch: 1135 autoencoder_loss: 0.033743 generator_loss: 14.631007 discriminator_loss:
0.172006
epoch: 1136 autoencoder_loss: 0.033590 generator_loss: 17.009682 discriminator_loss:
0.172396
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epoch: 1140 autoencoder_loss: 0.034516 generator_loss: 14.489186 discriminator_loss:
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epoch: 1141 autoencoder_loss: 0.034667 generator_loss: 13.833976 discriminator_loss:
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epoch: 1142 autoencoder_loss: 0.034566 generator_loss: 15.754751 discriminator_loss:
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epoch: 1144 autoencoder_loss: 0.034462 generator_loss: 15.104892 discriminator_loss:
0.210927
epoch: 1145 autoencoder_loss: 0.034845 generator_loss: 14.581057 discriminator_loss:
0.219716
epoch: 1146 autoencoder_loss: 0.035491 generator_loss: 16.757469 discriminator_loss:
0.177655
epoch: 1147 autoencoder_loss: 0.036464 generator_loss: 15.796206 discriminator_loss:
0.182428
epoch: 1148 autoencoder_loss: 0.037801 generator_loss: 14.025516 discriminator_loss:
0.233319
```

```
epoch: 1149 autoencoder_loss: 0.039735 generator_loss: 15.259596 discriminator_loss:
0.258236
epoch: 1150 autoencoder_loss: 0.042300 generator_loss: 13.940693 discriminator_loss:
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epoch: 1152 autoencoder_loss: 0.048917 generator_loss: 14.570036 discriminator_loss:
0.149850
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0.166115
epoch: 1154 autoencoder_loss: 0.053725 generator_loss: 14.019044 discriminator_loss:
0.160709
epoch: 1155 autoencoder_loss: 0.054359 generator_loss: 16.279192 discriminator_loss:
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0.155939
epoch: 1157 autoencoder_loss: 0.047009 generator_loss: 15.316490 discriminator_loss:
0.206491
epoch: 1158 autoencoder_loss: 0.044091 generator_loss: 13.844257 discriminator_loss:
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epoch: 1159 autoencoder_loss: 0.043807 generator_loss: 15.153399 discriminator_loss:
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epoch: 1161 autoencoder_loss: 0.041052 generator_loss: 14.131668 discriminator_loss:
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epoch: 1162 autoencoder_loss: 0.037387 generator_loss: 14.289636 discriminator_loss:
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epoch: 1163 autoencoder_loss: 0.036760 generator_loss: 13.801194 discriminator_loss:
0.259237
epoch: 1164 autoencoder_loss: 0.039564 generator_loss: 15.240047 discriminator_loss:
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epoch: 1165 autoencoder_loss: 0.040946 generator_loss: 14.419266 discriminator_loss:
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epoch: 1166 autoencoder_loss: 0.037984 generator_loss: 16.131861 discriminator_loss:
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epoch: 1167 autoencoder_loss: 0.034398 generator_loss: 14.796583 discriminator_loss:
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0.207596
epoch: 1169 autoencoder_loss: 0.037190 generator_loss: 14.623049 discriminator_loss:
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epoch: 1170 autoencoder_loss: 0.037783 generator_loss: 14.335340 discriminator_loss:
0.206323
epoch: 1171 autoencoder_loss: 0.035556 generator_loss: 14.883591 discriminator_loss:
0.205955
epoch: 1172 autoencoder_loss: 0.034001 generator_loss: 14.034008 discriminator_loss:
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epoch: 1173 autoencoder_loss: 0.035045 generator_loss: 14.294836 discriminator_loss:
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epoch: 1174 autoencoder_loss: 0.036340 generator_loss: 14.854400 discriminator_loss:
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epoch: 1175 autoencoder_loss: 0.035667 generator_loss: 15.104853 discriminator_loss:
0.239726
epoch: 1176 autoencoder_loss: 0.034024 generator_loss: 15.246267 discriminator_loss:
0.194347
```

```
epoch: 1177 autoencoder_loss: 0.033512 generator_loss: 15.233035 discriminator_loss:
0.187964
epoch: 1178 autoencoder_loss: 0.034025 generator_loss: 13.519712 discriminator_loss:
0.237354
epoch: 1179 autoencoder_loss: 0.034131 generator_loss: 15.067055 discriminator_loss:
0.226531
epoch: 1180 autoencoder_loss: 0.033528 generator_loss: 16.445127 discriminator_loss:
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epoch: 1181 autoencoder_loss: 0.033221 generator_loss: 13.809780 discriminator_loss:
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epoch: 1182 autoencoder_loss: 0.033506 generator_loss: 15.080877 discriminator_loss:
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epoch: 1183 autoencoder_loss: 0.033718 generator_loss: 15.776799 discriminator_loss:
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epoch: 1184 autoencoder_loss: 0.033332 generator_loss: 14.982191 discriminator_loss:
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0.202879
epoch: 1186 autoencoder_loss: 0.033095 generator_loss: 14.479217 discriminator_loss:
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epoch: 1188 autoencoder_loss: 0.033181 generator_loss: 14.414448 discriminator_loss:
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epoch: 1189 autoencoder_loss: 0.032664 generator_loss: 13.934712 discriminator_loss:
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epoch: 1191 autoencoder_loss: 0.032541 generator_loss: 15.184285 discriminator_loss:
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epoch: 1192 autoencoder_loss: 0.033059 generator_loss: 15.670028 discriminator_loss:
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epoch: 1193 autoencoder_loss: 0.033333 generator_loss: 16.128716 discriminator_loss:
0.167505
epoch: 1194 autoencoder_loss: 0.033265 generator_loss: 15.312475 discriminator_loss:
0.113429
epoch: 1195 autoencoder_loss: 0.033327 generator_loss: 14.281472 discriminator_loss:
0.252384
epoch: 1196 autoencoder_loss: 0.033735 generator_loss: 14.614377 discriminator_loss:
0.276449
epoch: 1197 autoencoder_loss: 0.034171 generator_loss: 15.712308 discriminator_loss:
0.192646
epoch: 1198 autoencoder_loss: 0.034177 generator_loss: 15.686032 discriminator_loss:
0.251462
epoch: 1199 autoencoder_loss: 0.034003 generator_loss: 14.475727 discriminator_loss:
0.233537
epoch: 1200 autoencoder_loss: 0.033938 generator_loss: 15.668836 discriminator_loss:
0.216952
epoch: 1201 autoencoder_loss: 0.033856 generator_loss: 15.295168 discriminator_loss:
0.186015
epoch: 1202 autoencoder_loss: 0.033684 generator_loss: 15.562346 discriminator_loss:
0.172295
epoch: 1203 autoencoder_loss: 0.033459 generator_loss: 16.380518 discriminator_loss:
0.193161
epoch: 1204 autoencoder_loss: 0.033174 generator_loss: 16.284664 discriminator_loss:
0.263553
```

```
epoch: 1205 autoencoder_loss: 0.033138 generator_loss: 14.463787 discriminator_loss:
0.250314
epoch: 1206 autoencoder_loss: 0.033452 generator_loss: 15.556345 discriminator_loss:
0.170734
epoch: 1207 autoencoder_loss: 0.033978 generator_loss: 14.779609 discriminator_loss:
0.221668
epoch: 1208 autoencoder_loss: 0.034667 generator_loss: 14.065248 discriminator_loss:
0.258542
epoch: 1209 autoencoder_loss: 0.035000 generator_loss: 15.782873 discriminator_loss:
0.225326
epoch: 1210 autoencoder_loss: 0.034537 generator_loss: 14.788492 discriminator_loss:
0.290844
epoch: 1211 autoencoder_loss: 0.034063 generator_loss: 14.350620 discriminator_loss:
0.325628
epoch: 1212 autoencoder_loss: 0.033973 generator_loss: 13.508440 discriminator_loss:
0.503721
epoch: 1213 autoencoder_loss: 0.034374 generator_loss: 16.491920 discriminator_loss:
0.378430
epoch: 1214 autoencoder_loss: 0.035204 generator_loss: 16.363708 discriminator_loss:
0.404441
epoch: 1215 autoencoder_loss: 0.036435 generator_loss: 15.988138 discriminator_loss:
0.403859
epoch: 1216 autoencoder_loss: 0.038094 generator_loss: 17.121250 discriminator_loss:
0.369988
epoch: 1217 autoencoder_loss: 0.039602 generator_loss: 16.624762 discriminator_loss:
0.227264
epoch: 1218 autoencoder_loss: 0.040757 generator_loss: 15.563830 discriminator_loss:
0.137006
epoch: 1219 autoencoder_loss: 0.041915 generator_loss: 16.998629 discriminator_loss:
0.082693
epoch: 1220 autoencoder_loss: 0.043090 generator_loss: 15.167382 discriminator_loss:
0.098945
epoch: 1221 autoencoder_loss: 0.044476 generator_loss: 15.034496 discriminator_loss:
0.175465
epoch: 1222 autoencoder_loss: 0.044802 generator_loss: 13.376117 discriminator_loss:
0.401954
epoch: 1223 autoencoder_loss: 0.043882 generator_loss: 15.907112 discriminator_loss:
0.214934
epoch: 1224 autoencoder_loss: 0.040515 generator_loss: 15.834072 discriminator_loss:
0.584678
epoch: 1225 autoencoder_loss: 0.037140 generator_loss: 14.330249 discriminator_loss:
0.337235
epoch: 1226 autoencoder_loss: 0.035538 generator_loss: 11.665822 discriminator_loss:
0.394207
epoch: 1227 autoencoder_loss: 0.036421 generator_loss: 10.749081 discriminator_loss:
0.486457
epoch: 1228 autoencoder_loss: 0.038582 generator_loss: 11.415375 discriminator_loss:
0.597560
epoch: 1229 autoencoder_loss: 0.039894 generator_loss: 12.891862 discriminator_loss:
0.454365
epoch: 1230 autoencoder_loss: 0.039694 generator_loss: 15.577843 discriminator_loss:
0.446409
epoch: 1231 autoencoder_loss: 0.038366 generator_loss: 17.014933 discriminator_loss:
0.415515
epoch: 1232 autoencoder_loss: 0.036580 generator_loss: 17.010904 discriminator_loss:
0.444876
```

```
epoch: 1233 autoencoder_loss: 0.036418 generator_loss: 16.069565 discriminator_loss:
0.364717
epoch: 1234 autoencoder_loss: 0.036654 generator_loss: 18.054848 discriminator_loss:
0.308038
epoch: 1235 autoencoder_loss: 0.036179 generator_loss: 17.599030 discriminator_loss:
0.296429
epoch: 1236 autoencoder_loss: 0.035138 generator_loss: 16.439472 discriminator_loss:
0.275206
epoch: 1237 autoencoder_loss: 0.034291 generator_loss: 14.808498 discriminator_loss:
0.274876
epoch: 1238 autoencoder_loss: 0.034032 generator_loss: 14.359610 discriminator_loss:
0.273783
epoch: 1239 autoencoder_loss: 0.034058 generator_loss: 14.583488 discriminator_loss:
0.259146
epoch: 1240 autoencoder_loss: 0.033898 generator_loss: 16.030643 discriminator_loss:
0.231165
epoch: 1241 autoencoder_loss: 0.033482 generator_loss: 13.441024 discriminator_loss:
0.295045
epoch: 1242 autoencoder_loss: 0.033196 generator_loss: 16.015862 discriminator_loss:
0.284449
epoch: 1243 autoencoder_loss: 0.033346 generator_loss: 16.965506 discriminator_loss:
0.311493
epoch: 1244 autoencoder_loss: 0.033785 generator_loss: 16.612667 discriminator_loss:
0.323065
epoch: 1245 autoencoder_loss: 0.034191 generator_loss: 16.418358 discriminator_loss:
0.291596
epoch: 1246 autoencoder_loss: 0.034660 generator_loss: 16.459822 discriminator_loss:
0.304356
epoch: 1247 autoencoder_loss: 0.035337 generator_loss: 15.748428 discriminator_loss:
0.319310
epoch: 1248 autoencoder_loss: 0.036526 generator_loss: 14.743499 discriminator_loss:
0.332040
epoch: 1249 autoencoder_loss: 0.038203 generator_loss: 14.542312 discriminator_loss:
0.347616
epoch: 1250 autoencoder_loss: 0.040407 generator_loss: 14.769862 discriminator_loss:
0.338806
epoch: 1251 autoencoder_loss: 0.042586 generator_loss: 14.637246 discriminator_loss:
0.330109
epoch: 1252 autoencoder_loss: 0.044799 generator_loss: 14.903179 discriminator_loss:
0.330482
epoch: 1253 autoencoder_loss: 0.045537 generator_loss: 15.365248 discriminator_loss:
0.338853
epoch: 1254 autoencoder_loss: 0.044786 generator_loss: 14.981210 discriminator_loss:
0.322288
epoch: 1255 autoencoder_loss: 0.041201 generator_loss: 15.024112 discriminator_loss:
0.307700
epoch: 1256 autoencoder_loss: 0.037103 generator_loss: 15.884498 discriminator_loss:
0.287246
epoch: 1257 autoencoder_loss: 0.034550 generator_loss: 12.730865 discriminator_loss:
0.636031
epoch: 1258 autoencoder_loss: 0.034696 generator_loss: 14.751950 discriminator_loss:
0.270434
epoch: 1259 autoencoder_loss: 0.036106 generator_loss: 15.725413 discriminator_loss:
0.260041
epoch: 1260 autoencoder_loss: 0.036494 generator_loss: 15.079311 discriminator_loss:
0.271068
```

```
epoch: 1261 autoencoder_loss: 0.035271 generator_loss: 16.850847 discriminator_loss:
0.268093
epoch: 1262 autoencoder_loss: 0.033690 generator_loss: 16.638186 discriminator_loss:
0.296131
epoch: 1263 autoencoder_loss: 0.033144 generator_loss: 17.129623 discriminator_loss:
0.251928
epoch: 1264 autoencoder_loss: 0.033748 generator_loss: 15.720287 discriminator_loss:
0.227970
epoch: 1265 autoencoder_loss: 0.034121 generator_loss: 15.942696 discriminator_loss:
0.225152
epoch: 1266 autoencoder_loss: 0.033633 generator_loss: 16.225927 discriminator_loss:
0.217107
epoch: 1267 autoencoder_loss: 0.032728 generator_loss: 15.956043 discriminator_loss:
0.212070
epoch: 1268 autoencoder_loss: 0.032401 generator_loss: 15.544912 discriminator_loss:
0.204320
epoch: 1269 autoencoder_loss: 0.032671 generator_loss: 15.877504 discriminator_loss:
0.200284
epoch: 1270 autoencoder_loss: 0.032899 generator_loss: 15.529038 discriminator_loss:
0.195683
epoch: 1271 autoencoder_loss: 0.032644 generator_loss: 15.656242 discriminator_loss:
0.294311
epoch: 1272 autoencoder_loss: 0.032238 generator_loss: 15.272862 discriminator_loss:
0.197067
epoch: 1273 autoencoder_loss: 0.032202 generator_loss: 14.272031 discriminator_loss:
0.184061
epoch: 1274 autoencoder_loss: 0.032542 generator_loss: 13.315504 discriminator_loss:
0.339097
epoch: 1275 autoencoder_loss: 0.032752 generator_loss: 14.421138 discriminator_loss:
0.173763
epoch: 1276 autoencoder_loss: 0.032576 generator_loss: 13.360600 discriminator_loss:
0.234780
epoch: 1277 autoencoder_loss: 0.032304 generator_loss: 14.790815 discriminator_loss:
0.229063
epoch: 1278 autoencoder_loss: 0.032358 generator_loss: 14.229072 discriminator_loss:
0.286705
epoch: 1279 autoencoder_loss: 0.032705 generator_loss: 15.821298 discriminator_loss:
0.209725
epoch: 1280 autoencoder_loss: 0.033021 generator_loss: 15.606930 discriminator_loss:
0.247140
epoch: 1281 autoencoder_loss: 0.033093 generator_loss: 15.560932 discriminator_loss:
0.252025
epoch: 1282 autoencoder_loss: 0.032997 generator_loss: 15.335374 discriminator_loss:
0.253885
epoch: 1283 autoencoder_loss: 0.032909 generator_loss: 16.459734 discriminator_loss:
0.234720
epoch: 1284 autoencoder_loss: 0.032930 generator_loss: 14.917030 discriminator_loss:
0.261988
epoch: 1285 autoencoder_loss: 0.032952 generator_loss: 14.663759 discriminator_loss:
0.259805
epoch: 1286 autoencoder_loss: 0.032913 generator_loss: 15.134941 discriminator_loss:
0.272917
epoch: 1287 autoencoder_loss: 0.032805 generator_loss: 15.193087 discriminator_loss:
0.284706
epoch: 1288 autoencoder_loss: 0.032625 generator_loss: 13.243978 discriminator_loss:
0.274792
```

```
epoch: 1289 autoencoder_loss: 0.032486 generator_loss: 15.014332 discriminator_loss:
0.236027
epoch: 1290 autoencoder_loss: 0.032560 generator_loss: 13.856904 discriminator_loss:
0.228196
epoch: 1291 autoencoder_loss: 0.032884 generator_loss: 16.347139 discriminator_loss:
0.238475
epoch: 1292 autoencoder_loss: 0.033562 generator_loss: 14.487724 discriminator_loss:
0.239954
epoch: 1293 autoencoder_loss: 0.034353 generator_loss: 14.407756 discriminator_loss:
0.210827
epoch: 1294 autoencoder_loss: 0.035646 generator_loss: 14.158271 discriminator_loss:
0.192247
epoch: 1295 autoencoder_loss: 0.037187 generator_loss: 13.128888 discriminator_loss:
0.229073
epoch: 1296 autoencoder_loss: 0.039302 generator_loss: 12.680466 discriminator_loss:
0.214451
epoch: 1297 autoencoder_loss: 0.040235 generator_loss: 12.636970 discriminator_loss:
0.216945
epoch: 1298 autoencoder_loss: 0.040477 generator_loss: 12.106047 discriminator_loss:
0.258392
epoch: 1299 autoencoder_loss: 0.038811 generator_loss: 9.992826 discriminator_loss:
0.354449
epoch: 1300 autoencoder_loss: 0.036466 generator_loss: 11.468142 discriminator_loss:
0.283994
epoch: 1301 autoencoder_loss: 0.033845 generator_loss: 12.982490 discriminator_loss:
0.271598
epoch: 1302 autoencoder_loss: 0.032423 generator_loss: 13.394581 discriminator_loss:
0.289504
epoch: 1303 autoencoder_loss: 0.032633 generator_loss: 12.149118 discriminator_loss:
0.318454
epoch: 1304 autoencoder_loss: 0.033881 generator_loss: 11.874561 discriminator_loss:
0.292483
epoch: 1305 autoencoder_loss: 0.034939 generator_loss: 13.457838 discriminator_loss:
0.281634
epoch: 1306 autoencoder_loss: 0.034791 generator_loss: 8.941338 discriminator_loss:
0.370361
epoch: 1307 autoencoder_loss: 0.033747 generator_loss: 10.520239 discriminator_loss:
0.373726
epoch: 1308 autoencoder_loss: 0.032390 generator_loss: 10.953459 discriminator_loss:
0.279454
epoch: 1309 autoencoder_loss: 0.031734 generator_loss: 12.661268 discriminator_loss:
0.266236
epoch: 1310 autoencoder_loss: 0.032071 generator_loss: 12.223867 discriminator_loss:
0.316426
epoch: 1311 autoencoder_loss: 0.032924 generator_loss: 12.867520 discriminator_loss:
0.285025
epoch: 1312 autoencoder_loss: 0.033332 generator_loss: 14.568069 discriminator_loss:
0.218295
epoch: 1313 autoencoder_loss: 0.033022 generator_loss: 13.996912 discriminator_loss:
0.195046
epoch: 1314 autoencoder_loss: 0.032311 generator_loss: 12.386454 discriminator_loss:
0.239900
epoch: 1315 autoencoder_loss: 0.031590 generator_loss: 14.031258 discriminator_loss:
0.223263
epoch: 1316 autoencoder_loss: 0.031246 generator_loss: 13.030528 discriminator_loss:
0.209601
```

```
epoch: 1317 autoencoder_loss: 0.031385 generator_loss: 11.946743 discriminator_loss:
0.277738
epoch: 1318 autoencoder_loss: 0.031761 generator_loss: 13.150224 discriminator_loss:
0.245046
epoch: 1319 autoencoder_loss: 0.031946 generator_loss: 11.912298 discriminator_loss:
0.281860
epoch: 1320 autoencoder_loss: 0.031812 generator_loss: 11.771056 discriminator_loss:
0.280657
epoch: 1321 autoencoder_loss: 0.031578 generator_loss: 13.589957 discriminator_loss:
0.281602
epoch: 1322 autoencoder_loss: 0.031284 generator_loss: 11.713780 discriminator_loss:
0.277226
epoch: 1323 autoencoder_loss: 0.031145 generator_loss: 12.465080 discriminator_loss:
0.272059
epoch: 1324 autoencoder_loss: 0.031241 generator_loss: 12.678817 discriminator_loss:
0.280436
epoch: 1325 autoencoder_loss: 0.031502 generator_loss: 11.563947 discriminator_loss:
0.409479
epoch: 1326 autoencoder_loss: 0.031928 generator_loss: 13.528275 discriminator_loss:
0.259277
epoch: 1327 autoencoder_loss: 0.032405 generator_loss: 13.949329 discriminator_loss:
0.222371
epoch: 1328 autoencoder_loss: 0.032919 generator_loss: 11.934102 discriminator_loss:
0.241625
epoch: 1329 autoencoder_loss: 0.033510 generator_loss: 14.274693 discriminator_loss:
0.204852
epoch: 1330 autoencoder_loss: 0.034436 generator_loss: 14.128393 discriminator_loss:
0.173250
epoch: 1331 autoencoder_loss: 0.035393 generator_loss: 12.094581 discriminator_loss:
0.181605
epoch: 1332 autoencoder_loss: 0.036464 generator_loss: 15.399010 discriminator_loss:
0.112634
epoch: 1333 autoencoder_loss: 0.036699 generator_loss: 13.900963 discriminator_loss:
0.116064
epoch: 1334 autoencoder_loss: 0.036450 generator_loss: 13.199011 discriminator_loss:
0.119415
epoch: 1335 autoencoder_loss: 0.035354 generator_loss: 13.917486 discriminator_loss:
0.128247
epoch: 1336 autoencoder_loss: 0.034451 generator_loss: 13.889506 discriminator_loss:
0.135648
epoch: 1337 autoencoder_loss: 0.033907 generator_loss: 13.812689 discriminator_loss:
0.150464
epoch: 1338 autoencoder_loss: 0.034123 generator_loss: 13.344018 discriminator_loss:
0.143404
epoch: 1339 autoencoder_loss: 0.034369 generator_loss: 13.747548 discriminator_loss:
0.130054
epoch: 1340 autoencoder_loss: 0.034257 generator_loss: 11.642388 discriminator_loss:
0.244301
epoch: 1341 autoencoder_loss: 0.033567 generator_loss: 12.033519 discriminator_loss:
0.207697
epoch: 1342 autoencoder_loss: 0.032740 generator_loss: 12.745139 discriminator_loss:
0.210206
epoch: 1343 autoencoder_loss: 0.032342 generator_loss: 12.203929 discriminator_loss:
0.329667
epoch: 1344 autoencoder_loss: 0.032478 generator_loss: 15.668444 discriminator_loss:
0.229161
```

```
epoch: 1345 autoencoder_loss: 0.032925 generator_loss: 12.487225 discriminator_loss:
0.384946
epoch: 1346 autoencoder_loss: 0.033234 generator_loss: 12.815143 discriminator_loss:
0.310515
epoch: 1347 autoencoder_loss: 0.033387 generator_loss: 13.794336 discriminator_loss:
0.215181
epoch: 1348 autoencoder_loss: 0.033287 generator_loss: 17.495262 discriminator_loss:
0.176316
epoch: 1349 autoencoder_loss: 0.033418 generator_loss: 17.342010 discriminator_loss:
0.164669
epoch: 1350 autoencoder_loss: 0.033685 generator_loss: 16.073534 discriminator_loss:
0.163592
epoch: 1351 autoencoder_loss: 0.034027 generator_loss: 16.549271 discriminator_loss:
0.118768
epoch: 1352 autoencoder_loss: 0.034150 generator_loss: 15.490804 discriminator_loss:
0.092995
epoch: 1353 autoencoder_loss: 0.033842 generator_loss: 12.963305 discriminator_loss:
0.499906
epoch: 1354 autoencoder_loss: 0.033271 generator_loss: 12.081123 discriminator_loss:
0.207156
epoch: 1355 autoencoder_loss: 0.032768 generator_loss: 13.024092 discriminator_loss:
0.622837
epoch: 1356 autoencoder_loss: 0.032901 generator_loss: 11.826845 discriminator_loss:
0.504506
epoch: 1357 autoencoder_loss: 0.033572 generator_loss: 16.250006 discriminator_loss:
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epoch: 1358 autoencoder_loss: 0.034352 generator_loss: 19.110569 discriminator_loss:
0.718550
epoch: 1359 autoencoder_loss: 0.034724 generator_loss: 19.969545 discriminator_loss:
0.454220
epoch: 1360 autoencoder_loss: 0.034518 generator_loss: 20.821730 discriminator_loss:
0.543570
epoch: 1361 autoencoder_loss: 0.033845 generator_loss: 19.212830 discriminator_loss:
0.386475
epoch: 1362 autoencoder_loss: 0.032970 generator_loss: 19.753660 discriminator_loss:
0.376060
epoch: 1363 autoencoder_loss: 0.032403 generator_loss: 16.883375 discriminator_loss:
0.466028
epoch: 1364 autoencoder_loss: 0.032167 generator_loss: 17.340616 discriminator_loss:
0.282714
epoch: 1365 autoencoder_loss: 0.032340 generator_loss: 15.276701 discriminator_loss:
0.207277
epoch: 1366 autoencoder_loss: 0.032717 generator_loss: 15.106850 discriminator_loss:
0.156140
epoch: 1367 autoencoder_loss: 0.033131 generator_loss: 11.269201 discriminator_loss:
0.244659
epoch: 1368 autoencoder_loss: 0.033135 generator_loss: 11.468755 discriminator_loss:
0.245671
epoch: 1369 autoencoder_loss: 0.032718 generator_loss: 10.087693 discriminator_loss:
0.376185
epoch: 1370 autoencoder_loss: 0.032104 generator_loss: 12.822969 discriminator_loss:
0.168526
epoch: 1371 autoencoder_loss: 0.031932 generator_loss: 14.907718 discriminator_loss:
0.188230
epoch: 1372 autoencoder_loss: 0.031909 generator_loss: 15.728935 discriminator_loss:
0.170456
```

```
epoch: 1373 autoencoder_loss: 0.031995 generator_loss: 14.795566 discriminator_loss:
0.173686
epoch: 1374 autoencoder_loss: 0.032242 generator_loss: 14.336351 discriminator_loss:
0.187313
epoch: 1375 autoencoder_loss: 0.032574 generator_loss: 15.244073 discriminator_loss:
0.200903
epoch: 1376 autoencoder_loss: 0.032731 generator_loss: 16.596506 discriminator_loss:
0.208310
epoch: 1377 autoencoder_loss: 0.032954 generator_loss: 14.880526 discriminator_loss:
0.209285
epoch: 1378 autoencoder_loss: 0.033322 generator_loss: 15.735935 discriminator_loss:
0.200156
epoch: 1379 autoencoder_loss: 0.033532 generator_loss: 16.584616 discriminator_loss:
0.145518
epoch: 1380 autoencoder_loss: 0.033912 generator_loss: 15.310305 discriminator_loss:
0.175403
epoch: 1381 autoencoder_loss: 0.034829 generator_loss: 14.131229 discriminator_loss:
0.228486
epoch: 1382 autoencoder_loss: 0.036522 generator_loss: 13.429176 discriminator_loss:
0.253003
epoch: 1383 autoencoder_loss: 0.038179 generator_loss: 16.200796 discriminator_loss:
0.192549
epoch: 1384 autoencoder_loss: 0.039418 generator_loss: 15.270662 discriminator_loss:
0.216989
epoch: 1385 autoencoder_loss: 0.039197 generator_loss: 14.403551 discriminator_loss:
0.194834
epoch: 1386 autoencoder_loss: 0.038290 generator_loss: 14.418822 discriminator_loss:
0.195692
epoch: 1387 autoencoder_loss: 0.036004 generator_loss: 14.967425 discriminator_loss:
0.220014
epoch: 1388 autoencoder_loss: 0.033692 generator_loss: 13.484711 discriminator_loss:
0.285564
epoch: 1389 autoencoder_loss: 0.031906 generator_loss: 13.412893 discriminator_loss:
0.229141
epoch: 1390 autoencoder_loss: 0.031137 generator_loss: 14.244267 discriminator_loss:
0.203465
epoch: 1391 autoencoder_loss: 0.031134 generator_loss: 16.569754 discriminator_loss:
0.179567
epoch: 1392 autoencoder_loss: 0.031813 generator_loss: 14.356974 discriminator_loss:
0.181307
epoch: 1393 autoencoder_loss: 0.032528 generator_loss: 14.988052 discriminator_loss:
0.184184
epoch: 1394 autoencoder_loss: 0.032727 generator_loss: 14.088347 discriminator_loss:
0.212474
epoch: 1395 autoencoder_loss: 0.032393 generator_loss: 14.032761 discriminator_loss:
0.218752
epoch: 1396 autoencoder_loss: 0.031289 generator_loss: 13.521761 discriminator_loss:
0.196564
epoch: 1397 autoencoder_loss: 0.030332 generator_loss: 12.095834 discriminator_loss:
0.223330
epoch: 1398 autoencoder_loss: 0.029811 generator_loss: 14.905307 discriminator_loss:
0.145281
epoch: 1399 autoencoder_loss: 0.029898 generator_loss: 14.321903 discriminator_loss:
0.181120
epoch: 1400 autoencoder_loss: 0.030495 generator_loss: 14.664080 discriminator_loss:
0.193063
```

```
epoch: 1401 autoencoder_loss: 0.031065 generator_loss: 15.575306 discriminator_loss:
0.191115
epoch: 1402 autoencoder_loss: 0.030986 generator_loss: 15.503628 discriminator_loss:
0.184132
epoch: 1403 autoencoder_loss: 0.030200 generator_loss: 15.748157 discriminator_loss:
0.184303
epoch: 1404 autoencoder_loss: 0.029482 generator_loss: 14.624885 discriminator_loss:
0.173619
epoch: 1405 autoencoder_loss: 0.029152 generator_loss: 15.074958 discriminator_loss:
0.199700
epoch: 1406 autoencoder_loss: 0.029147 generator_loss: 15.779608 discriminator_loss:
0.220255
epoch: 1407 autoencoder_loss: 0.029370 generator_loss: 14.859482 discriminator_loss:
0.196545
epoch: 1408 autoencoder_loss: 0.029745 generator_loss: 17.022335 discriminator_loss:
0.162943
epoch: 1409 autoencoder_loss: 0.029559 generator_loss: 16.663902 discriminator_loss:
0.168731
epoch: 1410 autoencoder_loss: 0.029400 generator_loss: 14.131999 discriminator_loss:
0.258980
epoch: 1411 autoencoder_loss: 0.029338 generator_loss: 13.563018 discriminator_loss:
0.312076
epoch: 1412 autoencoder_loss: 0.029249 generator_loss: 14.703172 discriminator_loss:
0.201097
epoch: 1413 autoencoder_loss: 0.029281 generator_loss: 14.610913 discriminator_loss:
0.211849
epoch: 1414 autoencoder_loss: 0.029535 generator_loss: 13.925585 discriminator_loss:
0.273161
epoch: 1415 autoencoder_loss: 0.030164 generator_loss: 16.590681 discriminator_loss:
0.227481
epoch: 1416 autoencoder_loss: 0.031235 generator_loss: 14.749878 discriminator_loss:
0.213941
epoch: 1417 autoencoder_loss: 0.032851 generator_loss: 13.723660 discriminator_loss:
0.234531
epoch: 1418 autoencoder_loss: 0.035206 generator_loss: 12.026404 discriminator_loss:
0.279175
epoch: 1419 autoencoder_loss: 0.038580 generator_loss: 15.395641 discriminator_loss:
0.166367
epoch: 1420 autoencoder_loss: 0.041838 generator_loss: 13.911810 discriminator_loss:
0.185769
epoch: 1421 autoencoder_loss: 0.044894 generator_loss: 12.884077 discriminator_loss:
0.174253
epoch: 1422 autoencoder_loss: 0.044737 generator_loss: 11.972256 discriminator_loss:
0.177528
epoch: 1423 autoencoder_loss: 0.041875 generator_loss: 13.758748 discriminator_loss:
0.143808
epoch: 1424 autoencoder_loss: 0.035836 generator_loss: 13.826899 discriminator_loss:
0.127164
epoch: 1425 autoencoder_loss: 0.031154 generator_loss: 13.444786 discriminator_loss:
0.121191
epoch: 1426 autoencoder_loss: 0.030619 generator_loss: 12.233635 discriminator_loss:
0.231561
epoch: 1427 autoencoder_loss: 0.033495 generator_loss: 11.835565 discriminator_loss:
0.371325
epoch: 1428 autoencoder_loss: 0.035437 generator_loss: 14.273335 discriminator_loss:
0.157170
```

```
epoch: 1429 autoencoder_loss: 0.033925 generator_loss: 14.732042 discriminator_loss:
0.179878
epoch: 1430 autoencoder_loss: 0.030732 generator_loss: 15.373650 discriminator_loss:
0.139757
epoch: 1431 autoencoder_loss: 0.028941 generator_loss: 13.406499 discriminator_loss:
0.145420
epoch: 1432 autoencoder_loss: 0.029678 generator_loss: 12.381817 discriminator_loss:
0.334834
epoch: 1433 autoencoder_loss: 0.031048 generator_loss: 15.295564 discriminator_loss:
0.191119
epoch: 1434 autoencoder_loss: 0.030683 generator_loss: 15.620792 discriminator_loss:
0.172897
epoch: 1435 autoencoder_loss: 0.029176 generator_loss: 15.029032 discriminator_loss:
0.109733
epoch: 1436 autoencoder_loss: 0.028245 generator_loss: 14.365881 discriminator_loss:
0.141765
epoch: 1437 autoencoder_loss: 0.028702 generator_loss: 10.566685 discriminator_loss:
0.455843
epoch: 1438 autoencoder_loss: 0.029366 generator_loss: 12.694029 discriminator_loss:
0.109222
epoch: 1439 autoencoder_loss: 0.028955 generator_loss: 13.968763 discriminator_loss:
0.126104
epoch: 1440 autoencoder_loss: 0.027991 generator_loss: 12.900173 discriminator_loss:
0.147222
epoch: 1441 autoencoder_loss: 0.027705 generator_loss: 12.221683 discriminator_loss:
0.145993
epoch: 1442 autoencoder_loss: 0.028490 generator_loss: 11.083998 discriminator_loss:
0.255751
epoch: 1443 autoencoder_loss: 0.029468 generator_loss: 11.732601 discriminator_loss:
0.301546
epoch: 1444 autoencoder_loss: 0.029608 generator_loss: 12.792546 discriminator_loss:
0.253760
epoch: 1445 autoencoder_loss: 0.028928 generator_loss: 12.932581 discriminator_loss:
0.303019
epoch: 1446 autoencoder_loss: 0.028356 generator_loss: 15.140539 discriminator_loss:
0.284970
epoch: 1447 autoencoder_loss: 0.028439 generator_loss: 13.763844 discriminator_loss:
0.178952
epoch: 1448 autoencoder_loss: 0.028781 generator_loss: 11.565821 discriminator_loss:
0.341289
epoch: 1449 autoencoder_loss: 0.029256 generator_loss: 12.753666 discriminator_loss:
0.276426
epoch: 1450 autoencoder_loss: 0.029693 generator_loss: 14.252275 discriminator_loss:
0.230338
epoch: 1451 autoencoder_loss: 0.029831 generator_loss: 14.676787 discriminator_loss:
0.217807
epoch: 1452 autoencoder_loss: 0.029950 generator_loss: 14.427723 discriminator_loss:
0.218518
epoch: 1453 autoencoder_loss: 0.029985 generator_loss: 13.644613 discriminator_loss:
0.190387
epoch: 1454 autoencoder_loss: 0.029792 generator_loss: 13.181654 discriminator_loss:
0.173532
epoch: 1455 autoencoder_loss: 0.029439 generator_loss: 13.364759 discriminator_loss:
0.133966
epoch: 1456 autoencoder_loss: 0.028962 generator_loss: 13.100832 discriminator_loss:
0.152084
```

```
epoch: 1457 autoencoder_loss: 0.028642 generator_loss: 12.084364 discriminator_loss:
0.182425
epoch: 1458 autoencoder_loss: 0.028531 generator_loss: 13.409887 discriminator_loss:
0.149962
epoch: 1459 autoencoder_loss: 0.028503 generator_loss: 10.088140 discriminator_loss:
0.249811
epoch: 1460 autoencoder_loss: 0.028513 generator_loss: 11.006633 discriminator_loss:
0.168159
epoch: 1461 autoencoder_loss: 0.028470 generator_loss: 13.753855 discriminator_loss:
0.160399
epoch: 1462 autoencoder_loss: 0.028600 generator_loss: 15.688481 discriminator_loss:
0.196734
epoch: 1463 autoencoder_loss: 0.029087 generator_loss: 16.709642 discriminator_loss:
0.169993
epoch: 1464 autoencoder_loss: 0.029906 generator_loss: 14.367606 discriminator_loss:
0.148698
epoch: 1465 autoencoder_loss: 0.031080 generator_loss: 15.096025 discriminator_loss:
0.114048
epoch: 1466 autoencoder_loss: 0.032575 generator_loss: 14.863885 discriminator_loss:
0.089423
epoch: 1467 autoencoder_loss: 0.034130 generator_loss: 13.501866 discriminator_loss:
0.126708
epoch: 1468 autoencoder_loss: 0.036199 generator_loss: 13.216238 discriminator_loss:
0.358794
epoch: 1469 autoencoder_loss: 0.038067 generator_loss: 15.366203 discriminator_loss:
0.115397
epoch: 1470 autoencoder_loss: 0.039747 generator_loss: 14.166018 discriminator_loss:
0.118289
epoch: 1471 autoencoder_loss: 0.039283 generator_loss: 14.991475 discriminator_loss:
0.164389
epoch: 1472 autoencoder_loss: 0.037598 generator_loss: 16.745150 discriminator_loss:
0.149458
epoch: 1473 autoencoder_loss: 0.034308 generator_loss: 15.015767 discriminator_loss:
0.089958
epoch: 1474 autoencoder_loss: 0.031769 generator_loss: 16.588818 discriminator_loss:
0.097813
epoch: 1475 autoencoder_loss: 0.031474 generator_loss: 15.646523 discriminator_loss:
0.109823
epoch: 1476 autoencoder_loss: 0.033408 generator_loss: 13.782643 discriminator_loss:
0.095653
epoch: 1477 autoencoder_loss: 0.035683 generator_loss: 12.944886 discriminator_loss:
0.076456
epoch: 1478 autoencoder_loss: 0.036017 generator_loss: 12.536121 discriminator_loss:
0.142923
epoch: 1479 autoencoder_loss: 0.034590 generator_loss: 9.258018 discriminator_loss:
1.070913
epoch: 1480 autoencoder_loss: 0.032554 generator_loss: 13.918180 discriminator_loss:
0.249120
epoch: 1481 autoencoder_loss: 0.031488 generator_loss: 15.405248 discriminator_loss:
0.090555
epoch: 1482 autoencoder_loss: 0.031661 generator_loss: 17.258169 discriminator_loss:
0.177192
epoch: 1483 autoencoder_loss: 0.032233 generator_loss: 17.756470 discriminator_loss:
0.118563
epoch: 1484 autoencoder_loss: 0.032071 generator_loss: 14.556919 discriminator_loss:
0.123542
```

```
epoch: 1485 autoencoder_loss: 0.031066 generator_loss: 12.527825 discriminator_loss:
0.345453
epoch: 1486 autoencoder_loss: 0.029978 generator_loss: 17.241312 discriminator_loss:
0.163121
epoch: 1487 autoencoder_loss: 0.029422 generator_loss: 17.006474 discriminator_loss:
0.164903
epoch: 1488 autoencoder_loss: 0.029771 generator_loss: 15.405128 discriminator_loss:
0.174625
epoch: 1489 autoencoder_loss: 0.030423 generator_loss: 15.377374 discriminator_loss:
0.180023
epoch: 1490 autoencoder_loss: 0.030633 generator_loss: 13.654398 discriminator_loss:
0.834471
epoch: 1491 autoencoder_loss: 0.030441 generator_loss: 14.688209 discriminator_loss:
0.136372
epoch: 1492 autoencoder_loss: 0.030103 generator_loss: 15.040646 discriminator_loss:
0.181406
epoch: 1493 autoencoder_loss: 0.029828 generator_loss: 15.076977 discriminator_loss:
0.219941
epoch: 1494 autoencoder_loss: 0.029894 generator_loss: 17.470272 discriminator_loss:
0.274892
epoch: 1495 autoencoder_loss: 0.029986 generator_loss: 16.359436 discriminator_loss:
0.224191
epoch: 1496 autoencoder_loss: 0.029966 generator_loss: 16.125153 discriminator_loss:
0.200733
epoch: 1497 autoencoder_loss: 0.029778 generator_loss: 17.939484 discriminator_loss:
0.170079
epoch: 1498 autoencoder_loss: 0.029435 generator_loss: 18.038149 discriminator_loss:
0.129115
epoch: 1499 autoencoder_loss: 0.029177 generator_loss: 15.375787 discriminator_loss:
0.193129
epoch: 1500 autoencoder_loss: 0.029391 generator_loss: 16.759768 discriminator_loss:
0.149442
epoch: 1501 autoencoder_loss: 0.029602 generator_loss: 15.405460 discriminator_loss:
0.071142
epoch: 1502 autoencoder_loss: 0.029533 generator_loss: 16.172396 discriminator_loss:
0.070015
epoch: 1503 autoencoder_loss: 0.029263 generator_loss: 12.967628 discriminator_loss:
0.193517
epoch: 1504 autoencoder_loss: 0.029070 generator_loss: 13.856101 discriminator_loss:
0.388057
epoch: 1505 autoencoder_loss: 0.029193 generator_loss: 14.009374 discriminator_loss:
0.180883
epoch: 1506 autoencoder_loss: 0.029332 generator_loss: 18.008583 discriminator_loss:
0.217501
epoch: 1507 autoencoder_loss: 0.029473 generator_loss: 17.721994 discriminator_loss:
0.248419
epoch: 1508 autoencoder_loss: 0.029514 generator_loss: 19.403017 discriminator_loss:
0.101343
epoch: 1509 autoencoder_loss: 0.029382 generator_loss: 20.001095 discriminator_loss:
0.040723
epoch: 1510 autoencoder_loss: 0.029163 generator_loss: 19.757517 discriminator_loss:
0.047582
epoch: 1511 autoencoder_loss: 0.028965 generator_loss: 20.078943 discriminator_loss:
0.058078
epoch: 1512 autoencoder_loss: 0.028905 generator_loss: 20.172897 discriminator_loss:
0.061635
```

```
epoch: 1513 autoencoder_loss: 0.029073 generator_loss: 20.254704 discriminator_loss:
0.057484
epoch: 1514 autoencoder_loss: 0.029458 generator_loss: 19.209337 discriminator_loss:
0.046296
epoch: 1515 autoencoder_loss: 0.030271 generator_loss: 19.353018 discriminator_loss:
0.032037
epoch: 1516 autoencoder_loss: 0.031396 generator_loss: 18.300217 discriminator_loss:
0.025243
epoch: 1517 autoencoder_loss: 0.033293 generator_loss: 17.012526 discriminator_loss:
0.027206
epoch: 1518 autoencoder_loss: 0.035697 generator_loss: 14.528644 discriminator_loss:
0.206641
epoch: 1519 autoencoder_loss: 0.039022 generator_loss: 13.285544 discriminator_loss:
0.770604
epoch: 1520 autoencoder_loss: 0.042006 generator_loss: 15.637760 discriminator_loss:
0.404522
epoch: 1521 autoencoder_loss: 0.044139 generator_loss: 17.555517 discriminator_loss:
0.509576
epoch: 1522 autoencoder_loss: 0.043147 generator_loss: 18.689629 discriminator_loss:
0.577606
epoch: 1523 autoencoder_loss: 0.039142 generator_loss: 19.514759 discriminator_loss:
0.616226
epoch: 1524 autoencoder_loss: 0.033155 generator_loss: 19.153183 discriminator_loss:
0.657164
epoch: 1525 autoencoder_loss: 0.029134 generator_loss: 17.905685 discriminator_loss:
0.641253
epoch: 1526 autoencoder_loss: 0.029046 generator_loss: 18.566216 discriminator_loss:
0.611626
epoch: 1527 autoencoder_loss: 0.031779 generator_loss: 17.678123 discriminator_loss:
0.572138
epoch: 1528 autoencoder_loss: 0.033895 generator_loss: 16.944876 discriminator_loss:
0.536116
epoch: 1529 autoencoder_loss: 0.033320 generator_loss: 16.222605 discriminator_loss:
0.496795
epoch: 1530 autoencoder_loss: 0.030699 generator_loss: 15.095528 discriminator_loss:
0.458836
epoch: 1531 autoencoder_loss: 0.028663 generator_loss: 14.789170 discriminator_loss:
0.421047
epoch: 1532 autoencoder_loss: 0.028788 generator_loss: 15.895126 discriminator_loss:
0.374761
epoch: 1533 autoencoder_loss: 0.030059 generator_loss: 14.218309 discriminator_loss:
0.332756
epoch: 1534 autoencoder_loss: 0.030424 generator_loss: 11.612683 discriminator_loss:
0.319428
epoch: 1535 autoencoder_loss: 0.029054 generator_loss: 10.859159 discriminator_loss:
0.301640
epoch: 1536 autoencoder_loss: 0.027206 generator_loss: 11.414299 discriminator_loss:
0.281362
epoch: 1537 autoencoder_loss: 0.026392 generator_loss: 11.610408 discriminator_loss:
0.290380
epoch: 1538 autoencoder_loss: 0.026809 generator_loss: 9.394220 discriminator_loss:
0.354279
epoch: 1539 autoencoder_loss: 0.027367 generator_loss: 9.135420 discriminator_loss:
0.338648
epoch: 1540 autoencoder_loss: 0.027054 generator_loss: 10.463398 discriminator_loss:
0.272896
```

```
epoch: 1541 autoencoder_loss: 0.026068 generator_loss: 11.840867 discriminator_loss:
0.580189
epoch: 1542 autoencoder_loss: 0.025259 generator_loss: 12.333211 discriminator_loss:
0.234543
epoch: 1543 autoencoder_loss: 0.025178 generator_loss: 12.961116 discriminator_loss:
0.252271
epoch: 1544 autoencoder_loss: 0.025602 generator_loss: 13.741136 discriminator_loss:
0.230160
epoch: 1545 autoencoder_loss: 0.025861 generator_loss: 14.119121 discriminator_loss:
0.231949
epoch: 1546 autoencoder_loss: 0.025639 generator_loss: 13.478283 discriminator_loss:
0.242277
epoch: 1547 autoencoder_loss: 0.025089 generator_loss: 13.588934 discriminator_loss:
0.243506
epoch: 1548 autoencoder_loss: 0.024709 generator_loss: 14.701228 discriminator_loss:
0.237825
epoch: 1549 autoencoder_loss: 0.024736 generator_loss: 13.585352 discriminator_loss:
0.258637
epoch: 1550 autoencoder_loss: 0.025001 generator_loss: 13.434528 discriminator_loss:
0.271077
epoch: 1551 autoencoder_loss: 0.025196 generator_loss: 12.983756 discriminator_loss:
0.285431
epoch: 1552 autoencoder_loss: 0.025131 generator_loss: 13.118325 discriminator_loss:
0.279239
epoch: 1553 autoencoder_loss: 0.024873 generator_loss: 13.653228 discriminator_loss:
0.269135
epoch: 1554 autoencoder_loss: 0.024600 generator_loss: 13.158379 discriminator_loss:
0.270956
epoch: 1555 autoencoder_loss: 0.024447 generator_loss: 14.004443 discriminator_loss:
0.254452
epoch: 1556 autoencoder_loss: 0.024428 generator_loss: 12.705148 discriminator_loss:
0.269528
epoch: 1557 autoencoder_loss: 0.024429 generator_loss: 12.835278 discriminator_loss:
0.268717
epoch: 1558 autoencoder_loss: 0.024355 generator_loss: 13.261978 discriminator_loss:
0.257581
epoch: 1559 autoencoder_loss: 0.024193 generator_loss: 12.701517 discriminator_loss:
0.258502
epoch: 1560 autoencoder_loss: 0.024011 generator_loss: 12.465596 discriminator_loss:
0.261638
epoch: 1561 autoencoder_loss: 0.023880 generator_loss: 12.635024 discriminator_loss:
0.260963
epoch: 1562 autoencoder_loss: 0.023842 generator_loss: 12.414097 discriminator_loss:
0.264598
epoch: 1563 autoencoder_loss: 0.023867 generator_loss: 12.892300 discriminator_loss:
0.258791
epoch: 1564 autoencoder_loss: 0.023887 generator_loss: 12.424557 discriminator_loss:
0.266100
epoch: 1565 autoencoder_loss: 0.023868 generator_loss: 12.569913 discriminator_loss:
0.264666
epoch: 1566 autoencoder_loss: 0.023847 generator_loss: 12.428230 discriminator_loss:
0.263676
epoch: 1567 autoencoder_loss: 0.023854 generator_loss: 12.470638 discriminator_loss:
0.264204
epoch: 1568 autoencoder_loss: 0.023947 generator_loss: 11.748679 discriminator_loss:
0.274257
```

```
epoch: 1569 autoencoder_loss: 0.024153 generator_loss: 11.766231 discriminator_loss:
0.270515
epoch: 1570 autoencoder_loss: 0.024500 generator_loss: 11.603962 discriminator_loss:
0.262047
epoch: 1571 autoencoder_loss: 0.025007 generator_loss: 11.848985 discriminator_loss:
0.248236
epoch: 1572 autoencoder_loss: 0.025722 generator_loss: 10.888777 discriminator_loss:
0.291084
epoch: 1573 autoencoder_loss: 0.026612 generator_loss: 11.440234 discriminator_loss:
0.259373
epoch: 1574 autoencoder_loss: 0.027799 generator_loss: 12.765636 discriminator_loss:
0.245498
epoch: 1575 autoencoder_loss: 0.029090 generator_loss: 11.499752 discriminator_loss:
0.266766
epoch: 1576 autoencoder_loss: 0.030544 generator_loss: 11.877090 discriminator_loss:
0.268317
epoch: 1577 autoencoder_loss: 0.031347 generator_loss: 12.355967 discriminator_loss:
0.258816
epoch: 1578 autoencoder_loss: 0.031487 generator_loss: 12.536555 discriminator_loss:
0.263057
epoch: 1579 autoencoder_loss: 0.030201 generator_loss: 11.983727 discriminator_loss:
0.279427
epoch: 1580 autoencoder_loss: 0.027959 generator_loss: 12.410561 discriminator_loss:
0.271848
epoch: 1581 autoencoder_loss: 0.025355 generator_loss: 11.874453 discriminator_loss:
0.276318
epoch: 1582 autoencoder_loss: 0.023625 generator_loss: 12.787536 discriminator_loss:
0.271022
epoch: 1583 autoencoder_loss: 0.023246 generator_loss: 12.293661 discriminator_loss:
0.265208
epoch: 1584 autoencoder_loss: 0.023967 generator_loss: 12.007208 discriminator_loss:
0.265936
epoch: 1585 autoencoder_loss: 0.024983 generator_loss: 12.185946 discriminator_loss:
0.261528
epoch: 1586 autoencoder_loss: 0.025413 generator_loss: 12.789274 discriminator_loss:
0.246940
epoch: 1587 autoencoder_loss: 0.025002 generator_loss: 12.183237 discriminator_loss:
0.253302
epoch: 1588 autoencoder_loss: 0.024038 generator_loss: 11.950811 discriminator_loss:
0.258438
epoch: 1589 autoencoder_loss: 0.023183 generator_loss: 11.985035 discriminator_loss:
0.256635
epoch: 1590 autoencoder_loss: 0.022867 generator_loss: 12.635858 discriminator_loss:
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epoch: 1591 autoencoder_loss: 0.023106 generator_loss: 12.038129 discriminator_loss:
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epoch: 1592 autoencoder_loss: 0.023553 generator_loss: 12.204043 discriminator_loss:
0.257901
epoch: 1593 autoencoder_loss: 0.023757 generator_loss: 9.993864 discriminator_loss:
0.343377
epoch: 1594 autoencoder_loss: 0.023539 generator_loss: 12.374104 discriminator_loss:
0.279446
epoch: 1595 autoencoder_loss: 0.023045 generator_loss: 13.409977 discriminator_loss:
0.305052
epoch: 1596 autoencoder_loss: 0.022547 generator_loss: 13.543818 discriminator_loss:
0.280715
```

```
epoch: 1597 autoencoder_loss: 0.022316 generator_loss: 12.710041 discriminator_loss:
0.273211
epoch: 1598 autoencoder_loss: 0.022408 generator_loss: 12.078170 discriminator_loss:
0.256391
epoch: 1599 autoencoder_loss: 0.022681 generator_loss: 11.348798 discriminator_loss:
0.258146
epoch: 1600 autoencoder_loss: 0.022940 generator_loss: 12.297249 discriminator_loss:
0.249417
epoch: 1601 autoencoder_loss: 0.023025 generator_loss: 11.970653 discriminator_loss:
0.258284
epoch: 1602 autoencoder_loss: 0.022942 generator_loss: 12.040683 discriminator_loss:
0.258135
epoch: 1603 autoencoder_loss: 0.022783 generator_loss: 12.978818 discriminator_loss:
0.238273
epoch: 1604 autoencoder_loss: 0.022702 generator_loss: 12.302534 discriminator_loss:
0.255041
epoch: 1605 autoencoder_loss: 0.022832 generator_loss: 12.907974 discriminator_loss:
0.259539
epoch: 1606 autoencoder_loss: 0.023188 generator_loss: 13.114693 discriminator_loss:
0.266558
epoch: 1607 autoencoder_loss: 0.023743 generator_loss: 13.395391 discriminator_loss:
0.267198
epoch: 1608 autoencoder_loss: 0.024429 generator_loss: 13.210530 discriminator_loss:
0.260170
epoch: 1609 autoencoder_loss: 0.025422 generator_loss: 13.903648 discriminator_loss:
0.244768
epoch: 1610 autoencoder_loss: 0.026622 generator_loss: 13.956541 discriminator_loss:
0.229811
epoch: 1611 autoencoder_loss: 0.028657 generator_loss: 13.755112 discriminator_loss:
0.226411
epoch: 1612 autoencoder_loss: 0.031017 generator_loss: 14.057781 discriminator_loss:
0.195689
epoch: 1613 autoencoder_loss: 0.035034 generator_loss: 13.132992 discriminator_loss:
0.218101
epoch: 1614 autoencoder_loss: 0.038273 generator_loss: 12.341749 discriminator_loss:
0.201870
epoch: 1615 autoencoder_loss: 0.042256 generator_loss: 12.177145 discriminator_loss:
0.232889
epoch: 1616 autoencoder_loss: 0.040757 generator_loss: 12.186239 discriminator_loss:
0.265477
epoch: 1617 autoencoder_loss: 0.037076 generator_loss: 11.554255 discriminator_loss:
0.269913
epoch: 1618 autoencoder_loss: 0.029647 generator_loss: 13.181081 discriminator_loss:
0.275455
epoch: 1619 autoencoder_loss: 0.024730 generator_loss: 12.385525 discriminator_loss:
0.280511
epoch: 1620 autoencoder_loss: 0.025015 generator_loss: 13.060980 discriminator_loss:
0.281966
epoch: 1621 autoencoder_loss: 0.028236 generator_loss: 12.460135 discriminator_loss:
0.281623
epoch: 1622 autoencoder_loss: 0.030088 generator_loss: 12.760812 discriminator_loss:
0.255470
epoch: 1623 autoencoder_loss: 0.028139 generator_loss: 12.783258 discriminator_loss:
0.250141
epoch: 1624 autoencoder_loss: 0.025508 generator_loss: 11.482251 discriminator_loss:
0.234067
```

```
epoch: 1625 autoencoder_loss: 0.024804 generator_loss: 10.565938 discriminator_loss:
0.244840
epoch: 1626 autoencoder_loss: 0.026085 generator_loss: 10.501698 discriminator_loss:
0.245240
epoch: 1627 autoencoder_loss: 0.027181 generator_loss: 10.096680 discriminator_loss:
0.264878
epoch: 1628 autoencoder_loss: 0.026611 generator_loss: 10.703802 discriminator_loss:
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epoch: 1629 autoencoder_loss: 0.025605 generator_loss: 12.168706 discriminator_loss:
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epoch: 1630 autoencoder_loss: 0.025447 generator_loss: 12.913418 discriminator_loss:
0.278873
epoch: 1631 autoencoder_loss: 0.026037 generator_loss: 11.753082 discriminator_loss:
0.276211
epoch: 1632 autoencoder_loss: 0.026319 generator_loss: 12.996427 discriminator_loss:
0.260727
epoch: 1633 autoencoder_loss: 0.025625 generator_loss: 11.269707 discriminator_loss:
0.233910
epoch: 1634 autoencoder_loss: 0.024754 generator_loss: 11.538678 discriminator_loss:
0.207724
epoch: 1635 autoencoder_loss: 0.024388 generator_loss: 11.450620 discriminator_loss:
0.157544
epoch: 1636 autoencoder_loss: 0.024429 generator_loss: 11.203915 discriminator_loss:
0.155384
epoch: 1637 autoencoder_loss: 0.024443 generator_loss: 12.600541 discriminator_loss:
0.182932
epoch: 1638 autoencoder_loss: 0.024299 generator_loss: 10.639931 discriminator_loss:
0.202544
epoch: 1639 autoencoder_loss: 0.024328 generator_loss: 12.144931 discriminator_loss:
0.217213
epoch: 1640 autoencoder_loss: 0.024642 generator_loss: 12.936745 discriminator_loss:
0.291256
epoch: 1641 autoencoder_loss: 0.025047 generator_loss: 12.226124 discriminator_loss:
0.372566
epoch: 1642 autoencoder_loss: 0.025410 generator_loss: 12.859407 discriminator_loss:
0.401897
epoch: 1643 autoencoder_loss: 0.025702 generator_loss: 14.132446 discriminator_loss:
0.391439
epoch: 1644 autoencoder_loss: 0.025864 generator_loss: 14.323984 discriminator_loss:
0.362260
epoch: 1645 autoencoder_loss: 0.025650 generator_loss: 14.339936 discriminator_loss:
0.338281
epoch: 1646 autoencoder_loss: 0.025155 generator_loss: 13.496630 discriminator_loss:
0.305148
epoch: 1647 autoencoder_loss: 0.024513 generator_loss: 13.213005 discriminator_loss:
0.278914
epoch: 1648 autoencoder_loss: 0.024103 generator_loss: 12.426255 discriminator_loss:
0.258175
epoch: 1649 autoencoder_loss: 0.024173 generator_loss: 11.333355 discriminator_loss:
0.273273
epoch: 1650 autoencoder_loss: 0.024565 generator_loss: 10.886847 discriminator_loss:
0.263227
epoch: 1651 autoencoder_loss: 0.024945 generator_loss: 10.216640 discriminator_loss:
0.336987
epoch: 1652 autoencoder_loss: 0.025089 generator_loss: 11.828995 discriminator_loss:
0.209138
```

```
epoch: 1653 autoencoder_loss: 0.025028 generator_loss: 12.316295 discriminator_loss:
0.223853
epoch: 1654 autoencoder_loss: 0.024904 generator_loss: 12.391561 discriminator_loss:
0.224178
epoch: 1655 autoencoder_loss: 0.024813 generator_loss: 12.025688 discriminator_loss:
0.219523
epoch: 1656 autoencoder_loss: 0.024840 generator_loss: 12.234528 discriminator_loss:
0.221288
epoch: 1657 autoencoder_loss: 0.024935 generator_loss: 10.651974 discriminator_loss:
0.210959
epoch: 1658 autoencoder_loss: 0.025183 generator_loss: 11.512345 discriminator_loss:
0.217178
epoch: 1659 autoencoder_loss: 0.025538 generator_loss: 11.041510 discriminator_loss:
0.205614
epoch: 1660 autoencoder_loss: 0.026114 generator_loss: 11.827532 discriminator_loss:
0.178594
epoch: 1661 autoencoder_loss: 0.026820 generator_loss: 12.445021 discriminator_loss:
0.207711
epoch: 1662 autoencoder_loss: 0.027809 generator_loss: 10.684959 discriminator_loss:
0.230907
epoch: 1663 autoencoder_loss: 0.028720 generator_loss: 11.963245 discriminator_loss:
0.244519
epoch: 1664 autoencoder_loss: 0.029637 generator_loss: 12.615461 discriminator_loss:
0.264881
epoch: 1665 autoencoder_loss: 0.029910 generator_loss: 12.175499 discriminator_loss:
0.314003
epoch: 1666 autoencoder_loss: 0.029805 generator_loss: 13.438037 discriminator_loss:
0.329825
epoch: 1667 autoencoder_loss: 0.028918 generator_loss: 13.427539 discriminator_loss:
0.372665
epoch: 1668 autoencoder_loss: 0.027838 generator_loss: 13.082129 discriminator_loss:
0.398200
epoch: 1669 autoencoder_loss: 0.026780 generator_loss: 13.951339 discriminator_loss:
0.413738
epoch: 1670 autoencoder_loss: 0.026261 generator_loss: 12.757240 discriminator_loss:
0.446446
epoch: 1671 autoencoder_loss: 0.026378 generator_loss: 14.781425 discriminator_loss:
0.405529
epoch: 1672 autoencoder_loss: 0.026803 generator_loss: 14.905943 discriminator_loss:
0.383666
epoch: 1673 autoencoder_loss: 0.027142 generator_loss: 14.292655 discriminator_loss:
0.359604
epoch: 1674 autoencoder_loss: 0.027036 generator_loss: 14.176406 discriminator_loss:
0.328579
epoch: 1675 autoencoder_loss: 0.026500 generator_loss: 13.102957 discriminator_loss:
0.303437
epoch: 1676 autoencoder_loss: 0.025639 generator_loss: 13.054996 discriminator_loss:
0.281509
epoch: 1677 autoencoder_loss: 0.024806 generator_loss: 11.339818 discriminator_loss:
0.269073
epoch: 1678 autoencoder_loss: 0.024283 generator_loss: 12.081674 discriminator_loss:
0.249464
epoch: 1679 autoencoder_loss: 0.024134 generator_loss: 11.167802 discriminator_loss:
0.248488
epoch: 1680 autoencoder_loss: 0.024208 generator_loss: 10.314576 discriminator_loss:
0.253758
```

```
epoch: 1681 autoencoder_loss: 0.024291 generator_loss: 10.357419 discriminator_loss:
0.254090
epoch: 1682 autoencoder_loss: 0.024215 generator_loss: 9.315405 discriminator_loss:
0.260524
epoch: 1683 autoencoder_loss: 0.023992 generator_loss: 10.474289 discriminator_loss:
0.266545
epoch: 1684 autoencoder_loss: 0.023695 generator_loss: 9.807988 discriminator_loss:
0.278974
epoch: 1685 autoencoder_loss: 0.023462 generator_loss: 9.637371 discriminator_loss:
0.292400
epoch: 1686 autoencoder_loss: 0.023362 generator_loss: 10.047634 discriminator_loss:
0.294333
epoch: 1687 autoencoder_loss: 0.023406 generator_loss: 10.761915 discriminator_loss:
0.299141
epoch: 1688 autoencoder_loss: 0.023497 generator_loss: 10.013623 discriminator_loss:
0.314885
epoch: 1689 autoencoder_loss: 0.023571 generator_loss: 10.505364 discriminator_loss:
0.311007
epoch: 1690 autoencoder_loss: 0.023545 generator_loss: 10.597450 discriminator_loss:
0.306355
epoch: 1691 autoencoder_loss: 0.023363 generator_loss: 11.476739 discriminator_loss:
0.292955
epoch: 1692 autoencoder_loss: 0.023076 generator_loss: 10.946233 discriminator_loss:
0.294913
epoch: 1693 autoencoder_loss: 0.022756 generator_loss: 10.432997 discriminator_loss:
0.291451
epoch: 1694 autoencoder_loss: 0.022493 generator_loss: 10.865135 discriminator_loss:
0.295248
epoch: 1695 autoencoder_loss: 0.022351 generator_loss: 10.996517 discriminator_loss:
0.289313
epoch: 1696 autoencoder_loss: 0.022347 generator_loss: 10.019951 discriminator_loss:
0.300042
epoch: 1697 autoencoder_loss: 0.022484 generator_loss: 10.149942 discriminator_loss:
0.294317
epoch: 1698 autoencoder_loss: 0.022757 generator_loss: 10.142499 discriminator_loss:
0.293586
epoch: 1699 autoencoder_loss: 0.023175 generator_loss: 11.111932 discriminator_loss:
0.294523
epoch: 1700 autoencoder_loss: 0.023816 generator_loss: 10.972784 discriminator_loss:
0.289400
epoch: 1701 autoencoder_loss: 0.024739 generator_loss: 10.279133 discriminator_loss:
0.292381
epoch: 1702 autoencoder_loss: 0.026078 generator_loss: 10.746015 discriminator_loss:
0.289449
epoch: 1703 autoencoder_loss: 0.027726 generator_loss: 10.888330 discriminator_loss:
0.282229
epoch: 1704 autoencoder_loss: 0.029814 generator_loss: 10.538175 discriminator_loss:
0.280557
epoch: 1705 autoencoder_loss: 0.031642 generator_loss: 10.198585 discriminator_loss:
0.281028
epoch: 1706 autoencoder_loss: 0.033065 generator_loss: 10.411324 discriminator_loss:
0.276131
epoch: 1707 autoencoder_loss: 0.032295 generator_loss: 9.552328 discriminator_loss:
0.275465
epoch: 1708 autoencoder_loss: 0.029839 generator_loss: 9.563767 discriminator_loss:
0.267943
```

```
epoch: 1709 autoencoder_loss: 0.025897 generator_loss: 9.972808 discriminator_loss:
0.259637
epoch: 1710 autoencoder_loss: 0.022814 generator_loss: 9.474186 discriminator_loss:
0.257280
epoch: 1711 autoencoder_loss: 0.022052 generator_loss: 9.206617 discriminator_loss:
0.254448
epoch: 1712 autoencoder_loss: 0.023192 generator_loss: 9.017149 discriminator_loss:
0.255099
epoch: 1713 autoencoder_loss: 0.024394 generator_loss: 10.055358 discriminator_loss:
0.246761
epoch: 1714 autoencoder_loss: 0.024214 generator_loss: 9.283505 discriminator_loss:
0.246394
epoch: 1715 autoencoder_loss: 0.022809 generator_loss: 9.561287 discriminator_loss:
0.246630
epoch: 1716 autoencoder_loss: 0.021393 generator_loss: 8.771625 discriminator_loss:
0.248713
epoch: 1717 autoencoder_loss: 0.021045 generator_loss: 9.193011 discriminator_loss:
0.247013
epoch: 1718 autoencoder_loss: 0.021560 generator_loss: 8.854957 discriminator_loss:
0.252861
epoch: 1719 autoencoder_loss: 0.022088 generator_loss: 8.936040 discriminator_loss:
0.249440
epoch: 1720 autoencoder_loss: 0.022018 generator_loss: 9.100380 discriminator_loss:
0.254872
epoch: 1721 autoencoder_loss: 0.021429 generator_loss: 9.495924 discriminator_loss:
0.252421
epoch: 1722 autoencoder_loss: 0.020919 generator_loss: 9.168988 discriminator_loss:
0.252418
epoch: 1723 autoencoder_loss: 0.020801 generator_loss: 9.930177 discriminator_loss:
0.258412
epoch: 1724 autoencoder_loss: 0.020960 generator_loss: 9.521728 discriminator_loss:
0.254026
epoch: 1725 autoencoder_loss: 0.021079 generator_loss: 9.043177 discriminator_loss:
0.266003
epoch: 1726 autoencoder_loss: 0.020969 generator_loss: 9.267534 discriminator_loss:
0.262022
epoch: 1727 autoencoder_loss: 0.020716 generator_loss: 9.561537 discriminator_loss:
0.267545
epoch: 1728 autoencoder_loss: 0.020529 generator_loss: 9.734533 discriminator_loss:
0.269926
epoch: 1729 autoencoder_loss: 0.020496 generator_loss: 10.036195 discriminator_loss:
0.267701
epoch: 1730 autoencoder_loss: 0.020549 generator_loss: 9.696081 discriminator_loss:
0.268977
epoch: 1731 autoencoder_loss: 0.020585 generator_loss: 9.679797 discriminator_loss:
0.273222
epoch: 1732 autoencoder_loss: 0.020562 generator_loss: 9.034397 discriminator_loss:
0.271972
epoch: 1733 autoencoder_loss: 0.020438 generator_loss: 9.637756 discriminator_loss:
0.265501
epoch: 1734 autoencoder_loss: 0.020260 generator_loss: 10.116455 discriminator_loss:
0.262429
epoch: 1735 autoencoder_loss: 0.020101 generator_loss: 9.250722 discriminator_loss:
0.261788
epoch: 1736 autoencoder_loss: 0.020026 generator_loss: 9.905758 discriminator_loss:
0.257484
```

```
epoch: 1737 autoencoder_loss: 0.020045 generator_loss: 9.738604 discriminator_loss:
0.254223
epoch: 1738 autoencoder_loss: 0.020103 generator_loss: 9.609127 discriminator_loss:
0.251362
epoch: 1739 autoencoder_loss: 0.020120 generator_loss: 9.495993 discriminator_loss:
0.256537
epoch: 1740 autoencoder_loss: 0.020056 generator_loss: 9.926856 discriminator_loss:
0.249933
epoch: 1741 autoencoder_loss: 0.019975 generator_loss: 9.687732 discriminator_loss:
0.253046
epoch: 1742 autoencoder_loss: 0.019998 generator_loss: 9.476648 discriminator_loss:
0.253280
epoch: 1743 autoencoder_loss: 0.020199 generator_loss: 9.513628 discriminator_loss:
0.249655
epoch: 1744 autoencoder_loss: 0.020609 generator_loss: 9.683261 discriminator_loss:
0.253518
epoch: 1745 autoencoder_loss: 0.021174 generator_loss: 9.549623 discriminator_loss:
0.257335
epoch: 1746 autoencoder_loss: 0.021948 generator_loss: 9.579530 discriminator_loss:
0.258069
epoch: 1747 autoencoder_loss: 0.023061 generator_loss: 9.758990 discriminator_loss:
0.243939
epoch: 1748 autoencoder_loss: 0.024720 generator_loss: 9.331221 discriminator_loss:
0.262929
epoch: 1749 autoencoder_loss: 0.026977 generator_loss: 9.631783 discriminator_loss:
0.253345
epoch: 1750 autoencoder_loss: 0.029599 generator_loss: 9.966771 discriminator_loss:
0.249411
epoch: 1751 autoencoder_loss: 0.032121 generator_loss: 9.803890 discriminator_loss:
0.249198
epoch: 1752 autoencoder_loss: 0.033602 generator_loss: 10.376909 discriminator_loss:
0.247252
epoch: 1753 autoencoder_loss: 0.033374 generator_loss: 9.793887 discriminator_loss:
0.252748
epoch: 1754 autoencoder_loss: 0.031154 generator_loss: 9.673659 discriminator_loss:
0.246799
epoch: 1755 autoencoder_loss: 0.027616 generator_loss: 9.601871 discriminator_loss:
0.253548
epoch: 1756 autoencoder_loss: 0.024669 generator_loss: 9.601264 discriminator_loss:
0.261291
epoch: 1757 autoencoder_loss: 0.023244 generator_loss: 10.227143 discriminator_loss:
0.241069
epoch: 1758 autoencoder_loss: 0.023467 generator_loss: 9.743691 discriminator_loss:
0.259242
epoch: 1759 autoencoder_loss: 0.024309 generator_loss: 10.138033 discriminator_loss:
0.257899
epoch: 1760 autoencoder_loss: 0.024341 generator_loss: 9.889900 discriminator_loss:
0.261848
epoch: 1761 autoencoder_loss: 0.023484 generator_loss: 10.536466 discriminator_loss:
0.244245
epoch: 1762 autoencoder_loss: 0.022368 generator_loss: 10.104830 discriminator_loss:
0.263997
epoch: 1763 autoencoder_loss: 0.021887 generator_loss: 10.330824 discriminator_loss:
0.265491
epoch: 1764 autoencoder_loss: 0.021954 generator_loss: 10.717292 discriminator_loss:
0.254307
```

```
epoch: 1765 autoencoder_loss: 0.022149 generator_loss: 11.489337 discriminator_loss:
0.254866
epoch: 1766 autoencoder_loss: 0.022063 generator_loss: 11.007989 discriminator_loss:
0.252081
epoch: 1767 autoencoder_loss: 0.021711 generator_loss: 10.578304 discriminator_loss:
0.252991
epoch: 1768 autoencoder_loss: 0.021309 generator_loss: 10.419889 discriminator_loss:
0.254525
epoch: 1769 autoencoder_loss: 0.020909 generator_loss: 10.303719 discriminator_loss:
0.249042
epoch: 1770 autoencoder_loss: 0.020568 generator_loss: 9.901587 discriminator_loss:
0.263072
epoch: 1771 autoencoder_loss: 0.020437 generator_loss: 9.926286 discriminator_loss:
0.239894
epoch: 1772 autoencoder_loss: 0.020492 generator_loss: 9.866977 discriminator_loss:
0.245913
epoch: 1773 autoencoder_loss: 0.020657 generator_loss: 10.511178 discriminator_loss:
0.245016
epoch: 1774 autoencoder_loss: 0.020678 generator_loss: 10.075029 discriminator_loss:
0.250220
epoch: 1775 autoencoder_loss: 0.020471 generator_loss: 10.142435 discriminator_loss:
0.248023
epoch: 1776 autoencoder_loss: 0.020182 generator_loss: 10.420154 discriminator_loss:
0.244228
epoch: 1777 autoencoder_loss: 0.019986 generator_loss: 10.600706 discriminator_loss:
0.232120
epoch: 1778 autoencoder_loss: 0.019957 generator_loss: 10.917831 discriminator_loss:
0.233548
epoch: 1779 autoencoder_loss: 0.020028 generator_loss: 10.052042 discriminator_loss:
0.237805
epoch: 1780 autoencoder_loss: 0.020031 generator_loss: 10.772264 discriminator_loss:
0.232133
epoch: 1781 autoencoder_loss: 0.019890 generator_loss: 10.479042 discriminator_loss:
0.230027
epoch: 1782 autoencoder_loss: 0.019691 generator_loss: 10.419709 discriminator_loss:
0.211434
epoch: 1783 autoencoder_loss: 0.019566 generator_loss: 10.406755 discriminator_loss:
0.210710
epoch: 1784 autoencoder_loss: 0.019602 generator_loss: 10.434175 discriminator_loss:
0.209705
epoch: 1785 autoencoder_loss: 0.019728 generator_loss: 9.824190 discriminator_loss:
0.199003
epoch: 1786 autoencoder_loss: 0.019804 generator_loss: 10.748859 discriminator_loss:
0.193074
epoch: 1787 autoencoder_loss: 0.019903 generator_loss: 9.324335 discriminator_loss:
0.227773
epoch: 1788 autoencoder_loss: 0.019941 generator_loss: 9.430966 discriminator_loss:
0.214711
epoch: 1789 autoencoder_loss: 0.019939 generator_loss: 11.291303 discriminator_loss:
0.184183
epoch: 1790 autoencoder_loss: 0.019928 generator_loss: 11.005177 discriminator_loss:
0.179480
epoch: 1791 autoencoder_loss: 0.019962 generator_loss: 10.508720 discriminator_loss:
0.205439
epoch: 1792 autoencoder_loss: 0.020118 generator_loss: 10.898926 discriminator_loss:
0.189230
```

```
epoch: 1793 autoencoder_loss: 0.020312 generator_loss: 10.462271 discriminator_loss:
0.192860
epoch: 1794 autoencoder_loss: 0.020542 generator_loss: 10.554675 discriminator_loss:
0.172277
epoch: 1795 autoencoder_loss: 0.020795 generator_loss: 10.620579 discriminator_loss:
0.161649
epoch: 1796 autoencoder_loss: 0.020996 generator_loss: 10.428663 discriminator_loss:
0.160137
epoch: 1797 autoencoder_loss: 0.021232 generator_loss: 9.642118 discriminator_loss:
0.179448
epoch: 1798 autoencoder_loss: 0.021694 generator_loss: 9.112148 discriminator_loss:
0.249466
epoch: 1799 autoencoder_loss: 0.022707 generator_loss: 10.635686 discriminator_loss:
0.192732
epoch: 1800 autoencoder_loss: 0.024307 generator_loss: 10.809007 discriminator_loss:
0.362355
epoch: 1801 autoencoder_loss: 0.026873 generator_loss: 12.820799 discriminator_loss:
0.300041
epoch: 1802 autoencoder_loss: 0.029947 generator_loss: 11.212101 discriminator_loss:
0.331669
epoch: 1803 autoencoder_loss: 0.033387 generator_loss: 12.679598 discriminator_loss:
0.194386
epoch: 1804 autoencoder_loss: 0.035947 generator_loss: 12.411024 discriminator_loss:
0.242584
epoch: 1805 autoencoder_loss: 0.036110 generator_loss: 9.731465 discriminator_loss:
0.231430
epoch: 1806 autoencoder_loss: 0.033301 generator_loss: 9.324272 discriminator_loss:
0.216394
epoch: 1807 autoencoder_loss: 0.028122 generator_loss: 8.221769 discriminator_loss:
0.240342
epoch: 1808 autoencoder_loss: 0.024290 generator_loss: 8.141540 discriminator_loss:
0.380639
epoch: 1809 autoencoder_loss: 0.023674 generator_loss: 10.053407 discriminator_loss:
0.230955
epoch: 1810 autoencoder_loss: 0.025329 generator_loss: 11.756702 discriminator_loss:
0.218928
epoch: 1811 autoencoder_loss: 0.026334 generator_loss: 11.751020 discriminator_loss:
0.252627
epoch: 1812 autoencoder_loss: 0.025291 generator_loss: 12.241994 discriminator_loss:
0.274923
epoch: 1813 autoencoder_loss: 0.023165 generator_loss: 11.742914 discriminator_loss:
0.208854
epoch: 1814 autoencoder_loss: 0.022068 generator_loss: 10.870067 discriminator_loss:
0.216725
epoch: 1815 autoencoder_loss: 0.022680 generator_loss: 8.981098 discriminator_loss:
0.379135
epoch: 1816 autoencoder_loss: 0.023741 generator_loss: 9.141998 discriminator_loss:
0.256886
epoch: 1817 autoencoder_loss: 0.023833 generator_loss: 12.295294 discriminator_loss:
0.194980
epoch: 1818 autoencoder_loss: 0.023019 generator_loss: 12.342900 discriminator_loss:
0.228135
epoch: 1819 autoencoder_loss: 0.022456 generator_loss: 11.984503 discriminator_loss:
0.251041
epoch: 1820 autoencoder_loss: 0.022769 generator_loss: 12.167560 discriminator_loss:
0.246784
```

```
epoch: 1821 autoencoder_loss: 0.023372 generator_loss: 10.827927 discriminator_loss:
0.215649
epoch: 1822 autoencoder_loss: 0.023445 generator_loss: 10.409155 discriminator_loss:
0.183983
epoch: 1823 autoencoder_loss: 0.023069 generator_loss: 9.158539 discriminator_loss:
0.229989
epoch: 1824 autoencoder_loss: 0.022894 generator_loss: 8.087061 discriminator_loss:
0.317798
epoch: 1825 autoencoder_loss: 0.023160 generator_loss: 10.717851 discriminator_loss:
0.227275
epoch: 1826 autoencoder_loss: 0.023384 generator_loss: 12.191545 discriminator_loss:
0.201488
epoch: 1827 autoencoder_loss: 0.023198 generator_loss: 12.526155 discriminator_loss:
0.234229
epoch: 1828 autoencoder_loss: 0.022997 generator_loss: 12.590742 discriminator_loss:
0.234207
epoch: 1829 autoencoder_loss: 0.022955 generator_loss: 12.802362 discriminator_loss:
0.224990
epoch: 1830 autoencoder_loss: 0.023031 generator_loss: 12.713304 discriminator_loss:
0.206883
epoch: 1831 autoencoder_loss: 0.023113 generator_loss: 11.240627 discriminator_loss:
0.209260
epoch: 1832 autoencoder_loss: 0.023046 generator_loss: 11.138327 discriminator_loss:
0.187463
epoch: 1833 autoencoder_loss: 0.022923 generator_loss: 9.128341 discriminator_loss:
0.279247
epoch: 1834 autoencoder_loss: 0.022926 generator_loss: 10.263285 discriminator_loss:
0.195196
epoch: 1835 autoencoder_loss: 0.023015 generator_loss: 11.272107 discriminator_loss:
0.198545
epoch: 1836 autoencoder_loss: 0.023185 generator_loss: 14.253588 discriminator_loss:
0.177214
epoch: 1837 autoencoder_loss: 0.023206 generator_loss: 13.509740 discriminator_loss:
0.198309
epoch: 1838 autoencoder_loss: 0.023158 generator_loss: 13.693434 discriminator_loss:
0.189856
epoch: 1839 autoencoder_loss: 0.023178 generator_loss: 13.762980 discriminator_loss:
0.166526
epoch: 1840 autoencoder_loss: 0.023347 generator_loss: 10.924221 discriminator_loss:
0.236253
epoch: 1841 autoencoder_loss: 0.023716 generator_loss: 11.910140 discriminator_loss:
0.142948
epoch: 1842 autoencoder_loss: 0.024022 generator_loss: 10.050038 discriminator_loss:
0.250479
epoch: 1843 autoencoder_loss: 0.024167 generator_loss: 9.777029 discriminator_loss:
0.278578
epoch: 1844 autoencoder_loss: 0.024248 generator_loss: 12.185408 discriminator_loss:
0.180754
epoch: 1845 autoencoder_loss: 0.024394 generator_loss: 11.751450 discriminator_loss:
0.267692
epoch: 1846 autoencoder_loss: 0.024697 generator_loss: 12.892522 discriminator_loss:
0.254943
epoch: 1847 autoencoder_loss: 0.024923 generator_loss: 12.860911 discriminator_loss:
0.223109
epoch: 1848 autoencoder_loss: 0.025159 generator_loss: 11.651953 discriminator_loss:
0.281550
```

```
epoch: 1849 autoencoder_loss: 0.025396 generator_loss: 10.728041 discriminator_loss:
0.200556
epoch: 1850 autoencoder_loss: 0.025650 generator_loss: 7.932490 discriminator_loss:
0.286880
epoch: 1851 autoencoder_loss: 0.025954 generator_loss: 9.504066 discriminator_loss:
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epoch: 1852 autoencoder_loss: 0.026329 generator_loss: 10.818244 discriminator_loss:
0.188130
epoch: 1853 autoencoder_loss: 0.026891 generator_loss: 9.705855 discriminator_loss:
0.185411
epoch: 1854 autoencoder_loss: 0.027782 generator_loss: 9.068544 discriminator_loss:
0.193234
epoch: 1855 autoencoder_loss: 0.029385 generator_loss: 8.194496 discriminator_loss:
0.250988
epoch: 1856 autoencoder_loss: 0.031947 generator_loss: 10.449390 discriminator_loss:
0.181496
epoch: 1857 autoencoder_loss: 0.036001 generator_loss: 13.162030 discriminator_loss:
0.229925
epoch: 1858 autoencoder_loss: 0.041386 generator_loss: 13.279449 discriminator_loss:
0.306999
epoch: 1859 autoencoder_loss: 0.048837 generator_loss: 13.729427 discriminator_loss:
0.219183
epoch: 1860 autoencoder_loss: 0.054378 generator_loss: 11.804153 discriminator_loss:
0.234677
epoch: 1861 autoencoder_loss: 0.056935 generator_loss: 10.575871 discriminator_loss:
0.321678
epoch: 1862 autoencoder_loss: 0.049150 generator_loss: 11.103094 discriminator_loss:
0.289263
epoch: 1863 autoencoder_loss: 0.039829 generator_loss: 13.131938 discriminator_loss:
0.202404
epoch: 1864 autoencoder_loss: 0.036167 generator_loss: 14.789663 discriminator_loss:
0.250951
epoch: 1865 autoencoder_loss: 0.041014 generator_loss: 16.241484 discriminator_loss:
0.162905
epoch: 1866 autoencoder_loss: 0.045481 generator_loss: 16.374174 discriminator_loss:
0.152609
epoch: 1867 autoencoder_loss: 0.041521 generator_loss: 14.949867 discriminator_loss:
0.151691
epoch: 1868 autoencoder_loss: 0.033541 generator_loss: 13.934513 discriminator_loss:
0.173206
epoch: 1869 autoencoder_loss: 0.031146 generator_loss: 13.645002 discriminator_loss:
0.166851
epoch: 1870 autoencoder_loss: 0.034267 generator_loss: 12.585117 discriminator_loss:
0.164319
epoch: 1871 autoencoder_loss: 0.035251 generator_loss: 13.357052 discriminator_loss:
0.114125
epoch: 1872 autoencoder_loss: 0.031871 generator_loss: 13.484860 discriminator_loss:
0.133059
epoch: 1873 autoencoder_loss: 0.029622 generator_loss: 14.217649 discriminator_loss:
0.130415
epoch: 1874 autoencoder_loss: 0.030814 generator_loss: 14.575512 discriminator_loss:
0.138715
epoch: 1875 autoencoder_loss: 0.031461 generator_loss: 14.239584 discriminator_loss:
0.125160
epoch: 1876 autoencoder_loss: 0.029674 generator_loss: 12.521332 discriminator_loss:
0.125731
```

```
epoch: 1877 autoencoder_loss: 0.027939 generator_loss: 11.743920 discriminator_loss:
0.167398
epoch: 1878 autoencoder_loss: 0.028529 generator_loss: 11.214548 discriminator_loss:
0.187010
epoch: 1879 autoencoder_loss: 0.029717 generator_loss: 13.071856 discriminator_loss:
0.207971
epoch: 1880 autoencoder_loss: 0.029488 generator_loss: 11.343779 discriminator_loss:
0.281307
epoch: 1881 autoencoder_loss: 0.028706 generator_loss: 11.660913 discriminator_loss:
0.310101
epoch: 1882 autoencoder_loss: 0.028780 generator_loss: 12.090184 discriminator_loss:
0.308583
epoch: 1883 autoencoder_loss: 0.029399 generator_loss: 10.502231 discriminator_loss:
0.367698
epoch: 1884 autoencoder_loss: 0.029596 generator_loss: 10.907939 discriminator_loss:
0.420034
epoch: 1885 autoencoder_loss: 0.029601 generator_loss: 12.222557 discriminator_loss:
0.441869
epoch: 1886 autoencoder_loss: 0.030005 generator_loss: 12.655244 discriminator_loss:
0.455239
epoch: 1887 autoencoder_loss: 0.030617 generator_loss: 13.951871 discriminator_loss:
0.434833
epoch: 1888 autoencoder_loss: 0.031089 generator_loss: 13.085255 discriminator_loss:
0.440262
epoch: 1889 autoencoder_loss: 0.031342 generator_loss: 12.730761 discriminator_loss:
0.390394
epoch: 1890 autoencoder_loss: 0.031428 generator_loss: 10.276819 discriminator_loss:
0.392453
epoch: 1891 autoencoder_loss: 0.031518 generator_loss: 11.781563 discriminator_loss:
0.311962
epoch: 1892 autoencoder_loss: 0.031611 generator_loss: 10.005631 discriminator_loss:
0.240223
epoch: 1893 autoencoder_loss: 0.031601 generator_loss: 8.643894 discriminator_loss:
0.249742
epoch: 1894 autoencoder_loss: 0.031362 generator_loss: 9.697681 discriminator_loss:
0.175842
epoch: 1895 autoencoder_loss: 0.031049 generator_loss: 9.899373 discriminator_loss:
0.191888
epoch: 1896 autoencoder_loss: 0.030834 generator_loss: 8.807969 discriminator_loss:
0.278196
epoch: 1897 autoencoder_loss: 0.030779 generator_loss: 11.355648 discriminator_loss:
0.184647
epoch: 1898 autoencoder_loss: 0.030663 generator_loss: 12.262238 discriminator_loss:
0.230563
epoch: 1899 autoencoder_loss: 0.030476 generator_loss: 13.113989 discriminator_loss:
0.215260
epoch: 1900 autoencoder_loss: 0.030304 generator_loss: 13.563063 discriminator_loss:
0.203481
epoch: 1901 autoencoder_loss: 0.030131 generator_loss: 12.288409 discriminator_loss:
0.180117
epoch: 1902 autoencoder_loss: 0.029842 generator_loss: 11.541647 discriminator_loss:
0.171662
epoch: 1903 autoencoder_loss: 0.029364 generator_loss: 10.387121 discriminator_loss:
0.159519
epoch: 1904 autoencoder_loss: 0.028793 generator_loss: 8.799595 discriminator_loss:
0.185948
```

```
epoch: 1905 autoencoder_loss: 0.028250 generator_loss: 7.446096 discriminator_loss:
0.246669
epoch: 1906 autoencoder_loss: 0.027754 generator_loss: 10.044591 discriminator_loss:
0.132365
epoch: 1907 autoencoder_loss: 0.027260 generator_loss: 9.855270 discriminator_loss:
0.097284
epoch: 1908 autoencoder_loss: 0.026740 generator_loss: 12.144012 discriminator_loss:
0.077359
epoch: 1909 autoencoder_loss: 0.026258 generator_loss: 11.411477 discriminator_loss:
0.075798
epoch: 1910 autoencoder_loss: 0.025869 generator_loss: 13.088985 discriminator_loss:
0.079296
epoch: 1911 autoencoder_loss: 0.025634 generator_loss: 13.559581 discriminator_loss:
0.115387
epoch: 1912 autoencoder_loss: 0.025533 generator_loss: 13.270540 discriminator_loss:
0.087438
epoch: 1913 autoencoder_loss: 0.025507 generator_loss: 11.366918 discriminator_loss:
0.206829
epoch: 1914 autoencoder_loss: 0.025669 generator_loss: 10.766924 discriminator_loss:
0.324623
epoch: 1915 autoencoder_loss: 0.026100 generator_loss: 15.420933 discriminator_loss:
0.249827
epoch: 1916 autoencoder_loss: 0.026661 generator_loss: 14.491455 discriminator_loss:
0.329978
epoch: 1917 autoencoder_loss: 0.027317 generator_loss: 13.347202 discriminator_loss:
0.556232
epoch: 1918 autoencoder_loss: 0.028199 generator_loss: 14.694308 discriminator_loss:
0.301123
epoch: 1919 autoencoder_loss: 0.029686 generator_loss: 14.021459 discriminator_loss:
0.087796
epoch: 1920 autoencoder_loss: 0.031836 generator_loss: 19.219770 discriminator_loss:
0.025674
epoch: 1921 autoencoder_loss: 0.034662 generator_loss: 18.833998 discriminator_loss:
0.020571
epoch: 1922 autoencoder_loss: 0.038520 generator_loss: 15.454528 discriminator_loss:
0.037722
epoch: 1923 autoencoder_loss: 0.043349 generator_loss: 15.395277 discriminator_loss:
0.047566
epoch: 1924 autoencoder_loss: 0.049599 generator_loss: 14.424156 discriminator_loss:
0.061577
epoch: 1925 autoencoder_loss: 0.054308 generator_loss: 11.630554 discriminator_loss:
0.140369
epoch: 1926 autoencoder_loss: 0.056635 generator_loss: 12.401034 discriminator_loss:
0.128291
epoch: 1927 autoencoder_loss: 0.051928 generator_loss: 11.908442 discriminator_loss:
0.102675
epoch: 1928 autoencoder_loss: 0.044321 generator_loss: 9.889813 discriminator_loss:
0.316359
epoch: 1929 autoencoder_loss: 0.038774 generator_loss: 15.084496 discriminator_loss:
0.367185
epoch: 1930 autoencoder_loss: 0.040513 generator_loss: 16.884409 discriminator_loss:
0.280077
epoch: 1931 autoencoder_loss: 0.046334 generator_loss: 18.235752 discriminator_loss:
0.069870
epoch: 1932 autoencoder_loss: 0.049508 generator_loss: 18.839333 discriminator_loss:
0.033755
```

```
epoch: 1933 autoencoder_loss: 0.048397 generator_loss: 15.787873 discriminator_loss:
0.035405
epoch: 1934 autoencoder_loss: 0.047093 generator_loss: 15.992656 discriminator_loss:
0.037476
epoch: 1935 autoencoder_loss: 0.048568 generator_loss: 16.797184 discriminator_loss:
0.016514
epoch: 1936 autoencoder_loss: 0.050612 generator_loss: 17.278624 discriminator_loss:
0.012603
epoch: 1937 autoencoder_loss: 0.049287 generator_loss: 15.859042 discriminator_loss:
0.023624
epoch: 1938 autoencoder_loss: 0.047851 generator_loss: 16.521591 discriminator_loss:
0.016262
epoch: 1939 autoencoder_loss: 0.047358 generator_loss: 16.124264 discriminator_loss:
0.055459
epoch: 1940 autoencoder_loss: 0.047011 generator_loss: 15.490983 discriminator_loss:
0.019041
epoch: 1941 autoencoder_loss: 0.045403 generator_loss: 15.519669 discriminator_loss:
0.025204
epoch: 1942 autoencoder_loss: 0.042933 generator_loss: 15.159803 discriminator_loss:
0.021072
epoch: 1943 autoencoder_loss: 0.041686 generator_loss: 13.352676 discriminator_loss:
0.247521
epoch: 1944 autoencoder_loss: 0.041181 generator_loss: 14.781836 discriminator_loss:
0.038192
epoch: 1945 autoencoder_loss: 0.039838 generator_loss: 13.320175 discriminator_loss:
0.339024
epoch: 1946 autoencoder_loss: 0.037672 generator_loss: 12.238408 discriminator_loss:
0.177921
epoch: 1947 autoencoder_loss: 0.036008 generator_loss: 10.513835 discriminator_loss:
0.296738
epoch: 1948 autoencoder_loss: 0.035444 generator_loss: 11.084854 discriminator_loss:
1.679868
epoch: 1949 autoencoder_loss: 0.035090 generator_loss: 10.106777 discriminator_loss:
0.280074
epoch: 1950 autoencoder_loss: 0.034188 generator_loss: 10.266246 discriminator_loss:
0.364071
epoch: 1951 autoencoder_loss: 0.033095 generator_loss: 9.487845 discriminator_loss:
0.347063
epoch: 1952 autoencoder_loss: 0.032293 generator_loss: 10.740361 discriminator_loss:
0.188736
epoch: 1953 autoencoder_loss: 0.031719 generator_loss: 11.670296 discriminator_loss:
0.148063
epoch: 1954 autoencoder_loss: 0.031145 generator_loss: 9.667350 discriminator_loss:
0.564872
epoch: 1955 autoencoder_loss: 0.030719 generator_loss: 12.945126 discriminator_loss:
0.248271
epoch: 1956 autoencoder_loss: 0.030802 generator_loss: 13.012072 discriminator_loss:
0.173807
epoch: 1957 autoencoder_loss: 0.031130 generator_loss: 13.606524 discriminator_loss:
0.125445
epoch: 1958 autoencoder_loss: 0.031449 generator_loss: 12.610814 discriminator_loss:
0.207031
epoch: 1959 autoencoder_loss: 0.031209 generator_loss: 13.203741 discriminator_loss:
0.150633
epoch: 1960 autoencoder_loss: 0.030671 generator_loss: 13.348832 discriminator_loss:
0.108328
```

```
epoch: 1961 autoencoder_loss: 0.030469 generator_loss: 13.180984 discriminator_loss:
0.064087
epoch: 1962 autoencoder_loss: 0.030503 generator_loss: 13.213346 discriminator_loss:
0.040691
epoch: 1963 autoencoder_loss: 0.030695 generator_loss: 12.665353 discriminator_loss:
0.033625
epoch: 1964 autoencoder_loss: 0.031137 generator_loss: 12.067946 discriminator_loss:
0.032072
epoch: 1965 autoencoder_loss: 0.031865 generator_loss: 11.416881 discriminator_loss:
0.062828
epoch: 1966 autoencoder_loss: 0.032829 generator_loss: 11.481041 discriminator_loss:
0.035903
epoch: 1967 autoencoder_loss: 0.033664 generator_loss: 11.183760 discriminator_loss:
0.110118
epoch: 1968 autoencoder_loss: 0.034158 generator_loss: 9.942545 discriminator_loss:
0.281477
epoch: 1969 autoencoder_loss: 0.033960 generator_loss: 10.437840 discriminator_loss:
0.219051
epoch: 1970 autoencoder_loss: 0.033266 generator_loss: 11.246082 discriminator_loss:
0.188339
epoch: 1971 autoencoder_loss: 0.032223 generator_loss: 12.245814 discriminator_loss:
0.134429
epoch: 1972 autoencoder_loss: 0.031245 generator_loss: 13.159889 discriminator_loss:
0.193629
epoch: 1973 autoencoder_loss: 0.030483 generator_loss: 13.698351 discriminator_loss:
0.293786
epoch: 1974 autoencoder_loss: 0.029840 generator_loss: 14.505489 discriminator_loss:
0.294614
epoch: 1975 autoencoder_loss: 0.029405 generator_loss: 13.942638 discriminator_loss:
0.232256
epoch: 1976 autoencoder_loss: 0.029113 generator_loss: 10.938894 discriminator_loss:
0.175472
epoch: 1977 autoencoder_loss: 0.029195 generator_loss: 9.669429 discriminator_loss:
0.373971
epoch: 1978 autoencoder_loss: 0.029502 generator_loss: 10.222513 discriminator_loss:
0.263382
epoch: 1979 autoencoder_loss: 0.029843 generator_loss: 13.591412 discriminator_loss:
0.310280
epoch: 1980 autoencoder_loss: 0.030082 generator_loss: 10.681438 discriminator_loss:
0.325521
epoch: 1981 autoencoder_loss: 0.030333 generator_loss: 9.176278 discriminator_loss:
0.267189
epoch: 1982 autoencoder_loss: 0.030529 generator_loss: 8.667810 discriminator_loss:
0.254823
epoch: 1983 autoencoder_loss: 0.030713 generator_loss: 9.500410 discriminator_loss:
0.159701
epoch: 1984 autoencoder_loss: 0.030890 generator_loss: 10.267428 discriminator_loss:
0.083631
epoch: 1985 autoencoder_loss: 0.030986 generator_loss: 10.739133 discriminator_loss:
0.077940
epoch: 1986 autoencoder_loss: 0.030924 generator_loss: 11.045365 discriminator_loss:
0.119866
epoch: 1987 autoencoder_loss: 0.030888 generator_loss: 12.006573 discriminator_loss:
1.007874
epoch: 1988 autoencoder_loss: 0.031142 generator_loss: 14.739716 discriminator_loss:
0.223507
```

```
epoch: 1989 autoencoder_loss: 0.032018 generator_loss: 15.183624 discriminator_loss:
0.565574
epoch: 1990 autoencoder_loss: 0.033635 generator_loss: 14.604276 discriminator_loss:
0.884729
epoch: 1991 autoencoder_loss: 0.036206 generator_loss: 13.122761 discriminator_loss:
1.773395
epoch: 1992 autoencoder_loss: 0.039047 generator_loss: 16.678165 discriminator_loss:
1.529525
epoch: 1993 autoencoder_loss: 0.040968 generator_loss: 17.963503 discriminator_loss:
1.049751
epoch: 1994 autoencoder_loss: 0.041380 generator_loss: 17.445801 discriminator_loss:
0.302080
epoch: 1995 autoencoder_loss: 0.040326 generator_loss: 14.890323 discriminator_loss:
0.228667
epoch: 1996 autoencoder_loss: 0.038174 generator_loss: 13.751995 discriminator_loss:
0.245589
epoch: 1997 autoencoder_loss: 0.036542 generator_loss: 9.173873 discriminator_loss:
0.855910
epoch: 1998 autoencoder_loss: 0.035870 generator_loss: 11.134337 discriminator_loss:
0.319384
epoch: 1999 autoencoder_loss: 0.035885 generator_loss: 11.756238 discriminator_loss:
0.323171
epoch: 2000 autoencoder_loss: 0.036276 generator_loss: 12.291025 discriminator_loss:
0.363598
```

In [ ]: