1. Example plot fake MLX90640 data

In [37]:
```python
# Imports
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

In [38]:
```python
# The thermal MLX90640 has size 24x32 =768 pixels array
thermal_data0=np.array([30.8,26.42,26.77,25.72,25.5,26.4,26.45,26.24,26.94,26.12,26.76,26.82,27.44,26.45,27.06,26.47,27.56,26.66,27.5
#thermal_data0=np.random.rand(768)
print("the length of the data is: ", len(thermal_data0))
```

the length of the data is: 768

In [39]:
```python
# Reshape the data of MLX90640 to 24x32
frame0_resize = thermal_data0.reshape((24, 32))
#Let see the frame after reshape
#frame0_resize
```

In [40]:
```python
#Normalize the data
v = frame0_resize
raw_data = (v - v.min()) / (v.max() - v.min())
```

In [41]:
```python
# Plot the data
plt.imshow(raw_data, cmap='jet')
plt.colorbar(shrink=0.9)
plt.show()
```
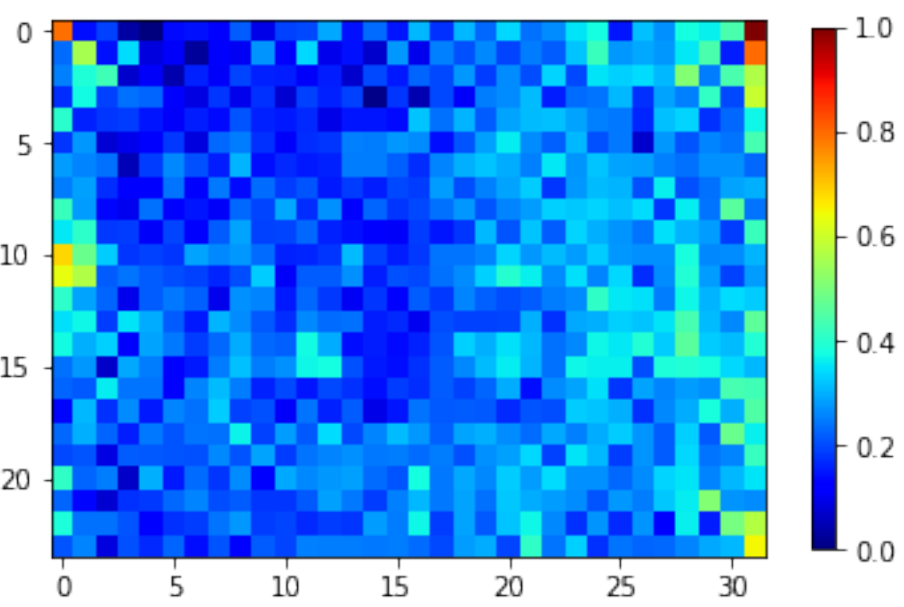

2. Plot MLX90640 data form CSV file

In [43]:
```python
# Load your data
raw_thermal_data = pd.read_csv('./data/thermal_data0.csv')
```

In [46]:
```python
#show your data, the MLX90640 data has size 768 pixels from P000 to P767
raw_thermal_data.head()
```

Out[46]:

	Time	RT	P000	P001	P002	P003	P004	P005	P006	P007	...	P758	P759	P760	P761	P762	P763	P764	P765	P766	P767
0	2020-06-26 15:50:21.6997	0	28.41	26.19	27.90	27.63	26.69	26.30	26.92	26.58	...	26.76	27.52	27.69	27.11	26.47	27.31	27.26	26.71	27.56	29.19
1	2020-06-26 15:50:21.7993	0	25.46	29.59	27.38	27.07	25.92	26.77	25.19	26.01	...	26.73	27.65	26.91	26.34	26.58	27.46	27.19	27.27	28.20	28.84
2	2020-06-26 15:50:21.9274	0	29.02	28.38	27.00	27.07	26.80	25.31	26.01	27.02	...	27.29	27.34	27.21	26.77	26.75	27.25	27.92	26.64	28.21	30.93
3	2020-06-26 15:50:22.0558	0	28.53	29.05	27.50	26.94	25.84	26.46	26.52	26.22	...	27.29	27.48	26.78	27.22	26.44	27.07	26.87	27.20	27.53	29.63
4	2020-06-26 15:50:22.2045	0	27.46	30.31	28.67	26.07	27.26	26.13	27.78	26.75	...	27.05	28.10	27.41	27.28	26.48	28.17	27.27	27.68	28.64	31.78

5 rows × 770 columns

In [58]:
```python
# Drop the Time and RT value
raw_thermal= raw_thermal_data.drop(["Time", "RT"], axis=1)
raw_thermal.head()
```

Out[58]:

	P000	P001	P002	P003	P004	P005	P006	P007	P008	P009	...	P758	P759	P760	P761	P762	P763	P764	P765	P766	P767
0	28.41	26.19	27.90	27.63	26.69	26.30	26.92	26.58	27.58	26.46	...	26.76	27.52	27.69	27.11	26.47	27.31	27.26	26.71	27.56	29.19
1	25.46	29.59	27.38	27.07	25.92	26.77	25.19	26.01	27.11	26.57	...	26.73	27.65	26.91	26.34	26.58	27.46	27.19	27.27	28.20	28.84
2	29.02	28.38	27.00	27.07	26.80	25.31	26.01	27.02	26.16	26.87	...	27.29	27.34	27.21	26.77	26.75	27.25	27.92	26.64	28.21	30.93
3	28.53	29.05	27.50	26.94	25.84	26.46	26.52	26.22	26.92	26.89	...	27.29	27.48	26.78	27.22	26.44	27.07	26.87	27.20	27.53	29.63
4	27.46	30.31	28.67	26.07	27.26	26.13	27.78	26.75	27.59	27.22	...	27.05	28.10	27.41	27.28	26.48	28.17	27.27	27.68	28.64	31.78

5 rows × 768 columns

In [60]:
```python
#Convert data to numpy
raw_thermal = raw_thermal.to_numpy()
```
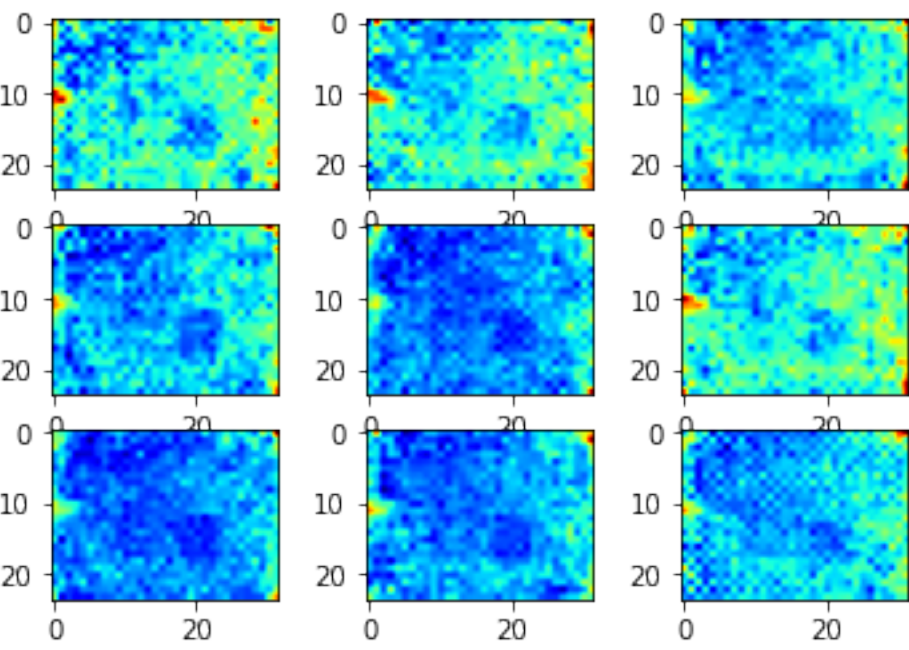
In [63]:
```python
# Reshape data
raw_thermal = raw_thermal.reshape((-1, 24, 32))
```

In [65]:
```python
#Shape of the raw data
raw_thermal.shape
```

Out[65]:
(1859, 24, 32)

In [69]:
```python
#Normalize the data
v = raw_thermal
raw_data = (v - v.min()) / (v.max() - v.min())
```

In [75]:
```python
for i in range(9):
    plt.subplot(3,3,i+1)
    plt.imshow(raw_data[i], cmap='jet')
plt.show()
```


In [ ]: