doe

October 23, 2021

[13]:
```
results = pd.read_csv("measured_times.csv")
print("\nMeasured times")
results
```

```
Measured times
```

[13]:

	Unnamed: 0	batch_size	model	image_size	job_type	\
0	0	1	SWAGenerator	256	random	
1	1	1	SWAGenerator	256	random	
2	2	1	SWAGenerator	256	random	
3	3	1	SWAGenerator	256	random	
4	4	1	SWAGenerator	256	random	
…	…	…	…	…	…	
2995	2995	8	Style2Generator	1024	interpolation	
2996	2996	8	Style2Generator	1024	interpolation	
2997	2997	8	Style2Generator	1024	interpolation	
2998	2998	8	Style2Generator	1024	interpolation	
2999	2999	8	Style2Generator	1024	interpolation	

	num_img	gpu	time
0	100	NVIDIA GeForce RTX 3090	1.354010
1	100	NVIDIA GeForce RTX 3090	1.352032
2	100	NVIDIA GeForce RTX 3090	1.325958
3	100	NVIDIA GeForce RTX 3090	1.337051
4	100	NVIDIA GeForce RTX 3090	1.328218
…	…	…	…
2995	200	NVIDIA GeForce GTX 1080 Ti	7.529429
2996	200	NVIDIA GeForce GTX 1080 Ti	7.503102
2997	200	NVIDIA GeForce GTX 1080 Ti	7.518918
2998	200	NVIDIA GeForce GTX 1080 Ti	7.519506
2999	200	NVIDIA GeForce GTX 1080 Ti	7.525169

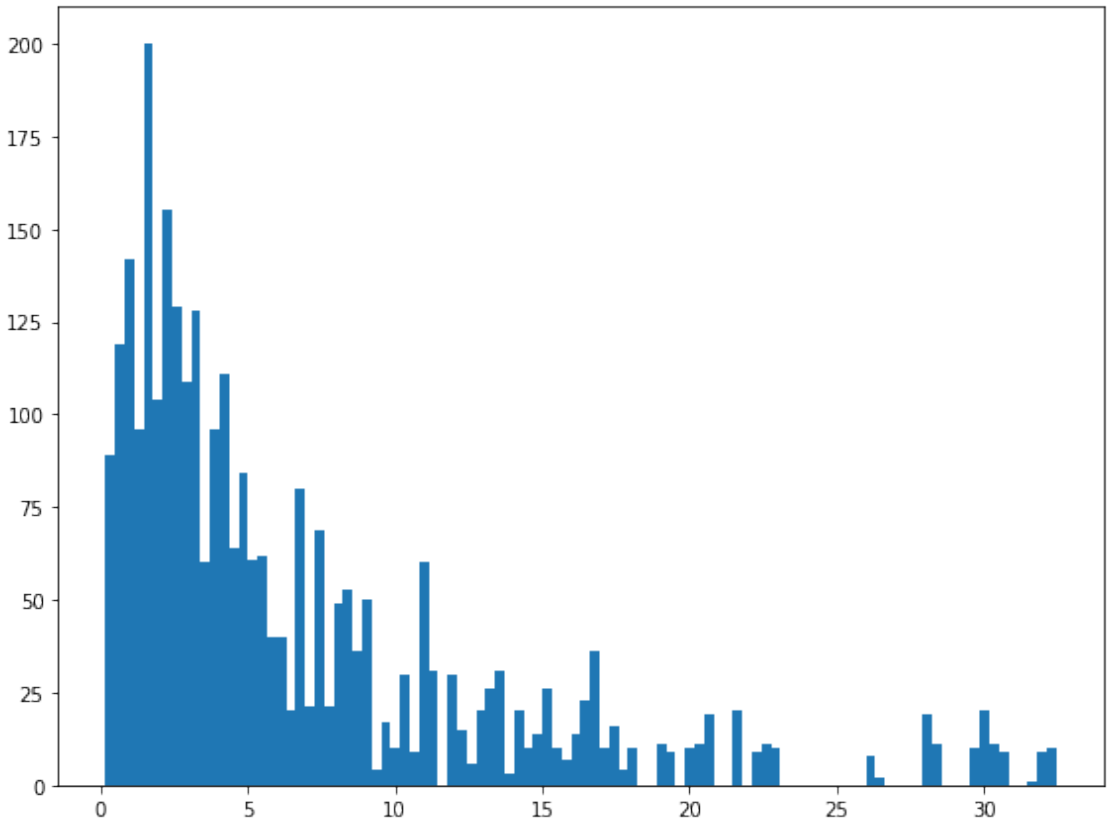
[3000 rows x 8 columns]

[14]:
```
print(
    f"min {results.time.min():.2f}s    median {np.median(results.time):.2f}s    ␣
 ↪mean {results.time.mean():.2f}s    max {results.time.max():.2f}s"
```

```
)
```

```
min 0.17s    median 4.25s    mean 6.83s    max 32.44s
```

[15]:
```
plt.subplots(1, 1, figsize=(8, 6))
plt.hist(results.time, bins=100)
plt.tight_layout()
plt.savefig("time-hist.pdf")
```



[16]:
```
time_lm = sm.formula.ols(
    "time ~ C(model) + batch_size + image_size*image_size + C(job_type) +␣
 ↪num_img + C(gpu)", data=results
).fit()
aov = sm.stats.anova_lm(time_lm, typ=2)
print("\nANOVA")
print(aov)
aov.to_csv("anova.csv")
```

```
ANOVA
                      sum_sq      df             F         PR(>F)
```

```
C(model)      5633.522343     4.0   155.707508  3.624215e-121
C(job_type)     13.822993     1.0     1.528240   2.164739e-01
C(gpu)        7054.676024     1.0   779.949704  1.029006e-152
batch_size     353.638863     1.0    39.097547   4.605600e-10
image_size   31395.436182     1.0  3471.011434   0.000000e+00
num_img      66855.767660     1.0  7391.428890   0.000000e+00
Residual     27044.668668  2990.0          NaN            NaN
```

[17]:
```
print("\nLinear model parameters")
print(time_lm.params)
```

```
Linear model parameters
Intercept                              -2.803958
C(model)[T.SWAGenerator]               -1.388462
C(model)[T.Style1Generator]            -3.589847
C(model)[T.Style2ADAGenerator]          0.086882
C(model)[T.Style2Generator]            -0.394705
C(job_type)[T.random]                  -0.135780
C(gpu)[T.NVIDIA GeForce RTX 3090]      -3.066959
batch_size                             -0.062946
image_size                              0.010136
num_img                                 0.017726
dtype: float64
```

[18]:
```
print("\nEffect sizes")
total = aov["sum_sq"].sum()
for var, (sum_sq, df, f, p) in list(aov.iterrows()):
    print(
        var.replace("C(", "").replace(")", "").ljust(12),
        f"{sum_sq / total * 100:.2f}%",
    )
```

```
Effect sizes
model        4.07%
job_type     0.01%
gpu          5.10%
batch_size   0.26%
image_size   22.69%
num_img      48.32%
Residual     19.55%
```