Understanding the impact of machine learning tasks on power consumption of modern mobile devices

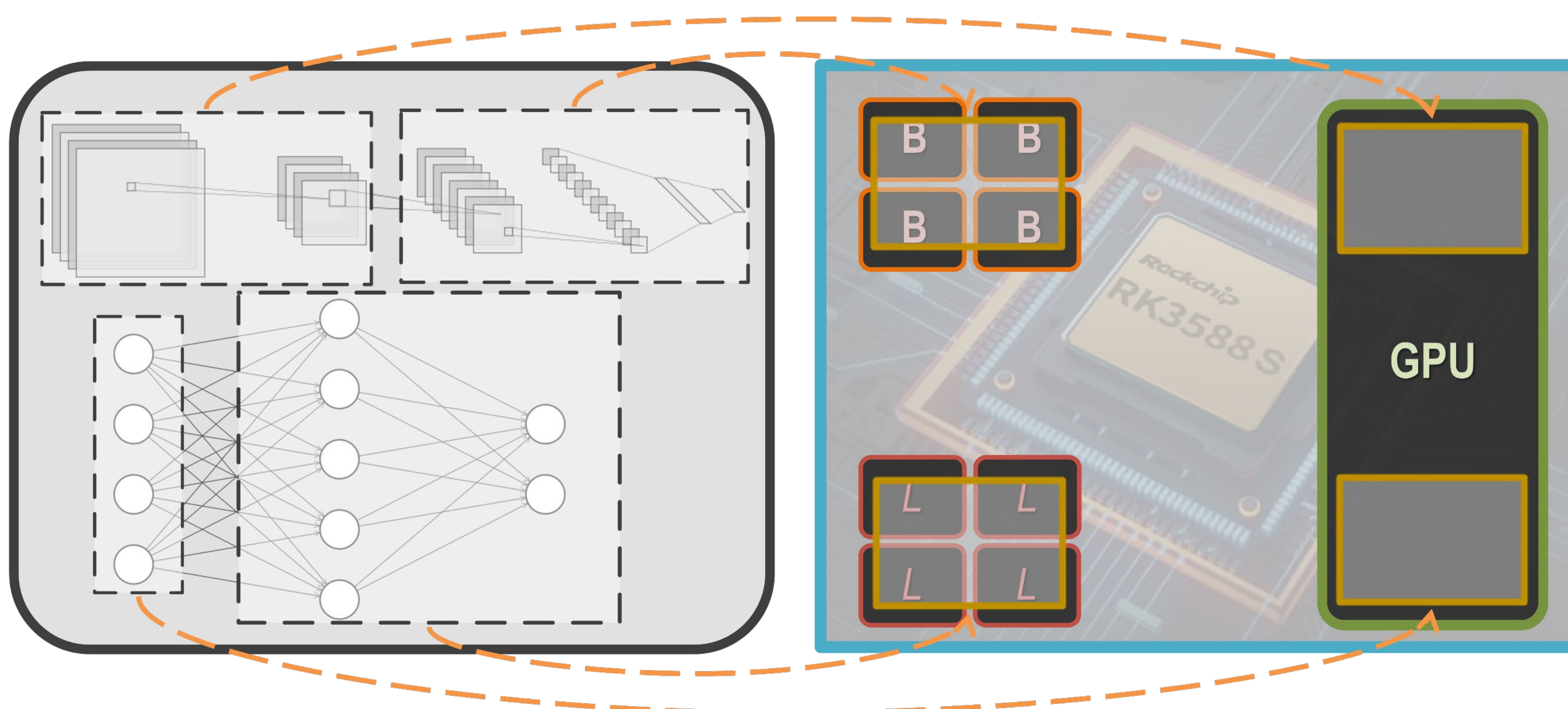Cole Dumas[1], Andreas Karatzas[2], Iraklis Anagnostopoulos, PhD[2]
[1]SI Bridges to the Baccalaureate, School of Biological Sciences, Southern Illinois University Carbondale
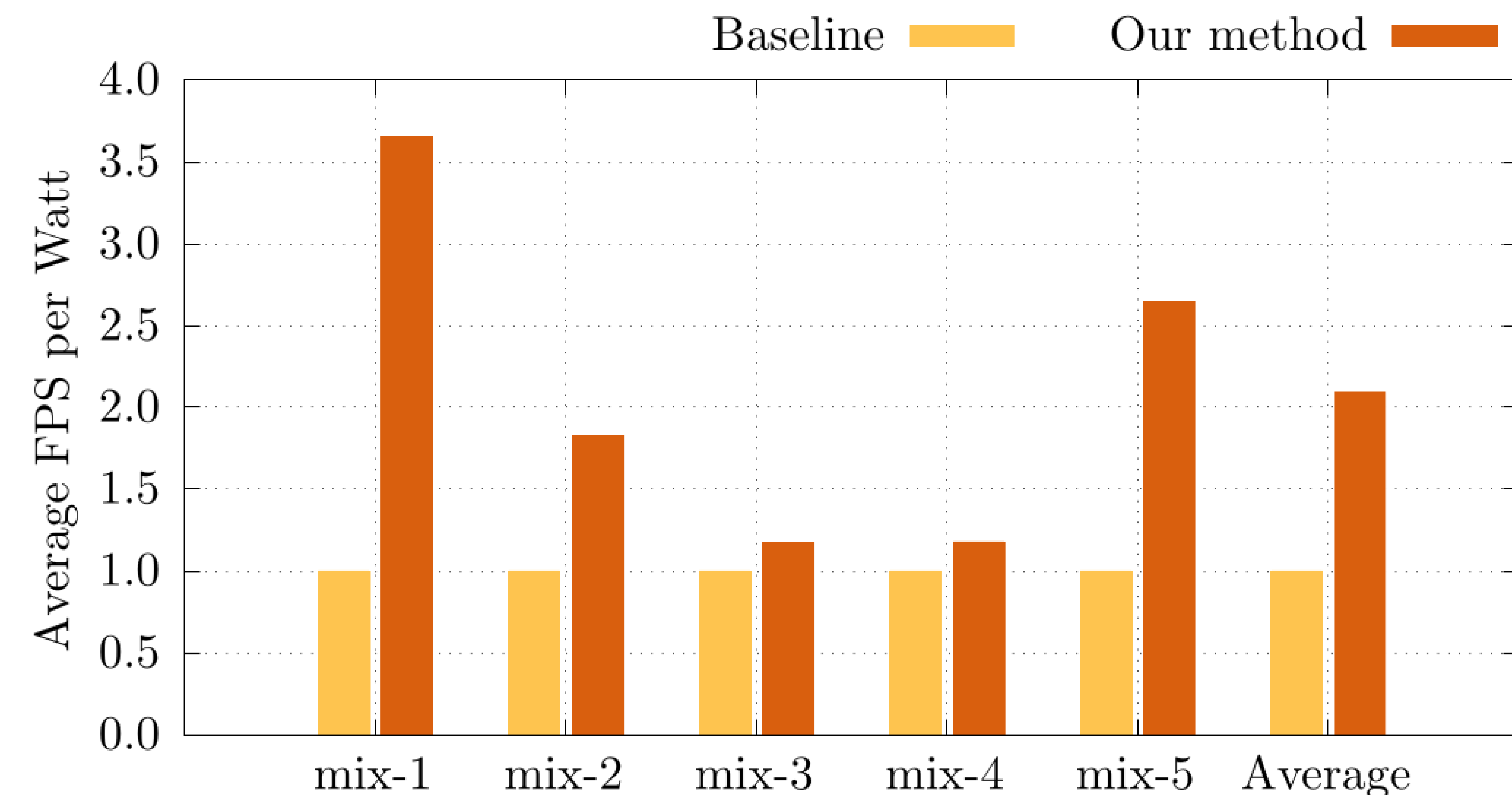[2]Embedded Systems Software Lab, Southern Illinois University Carbondale.

Introduction

Results

Methodology
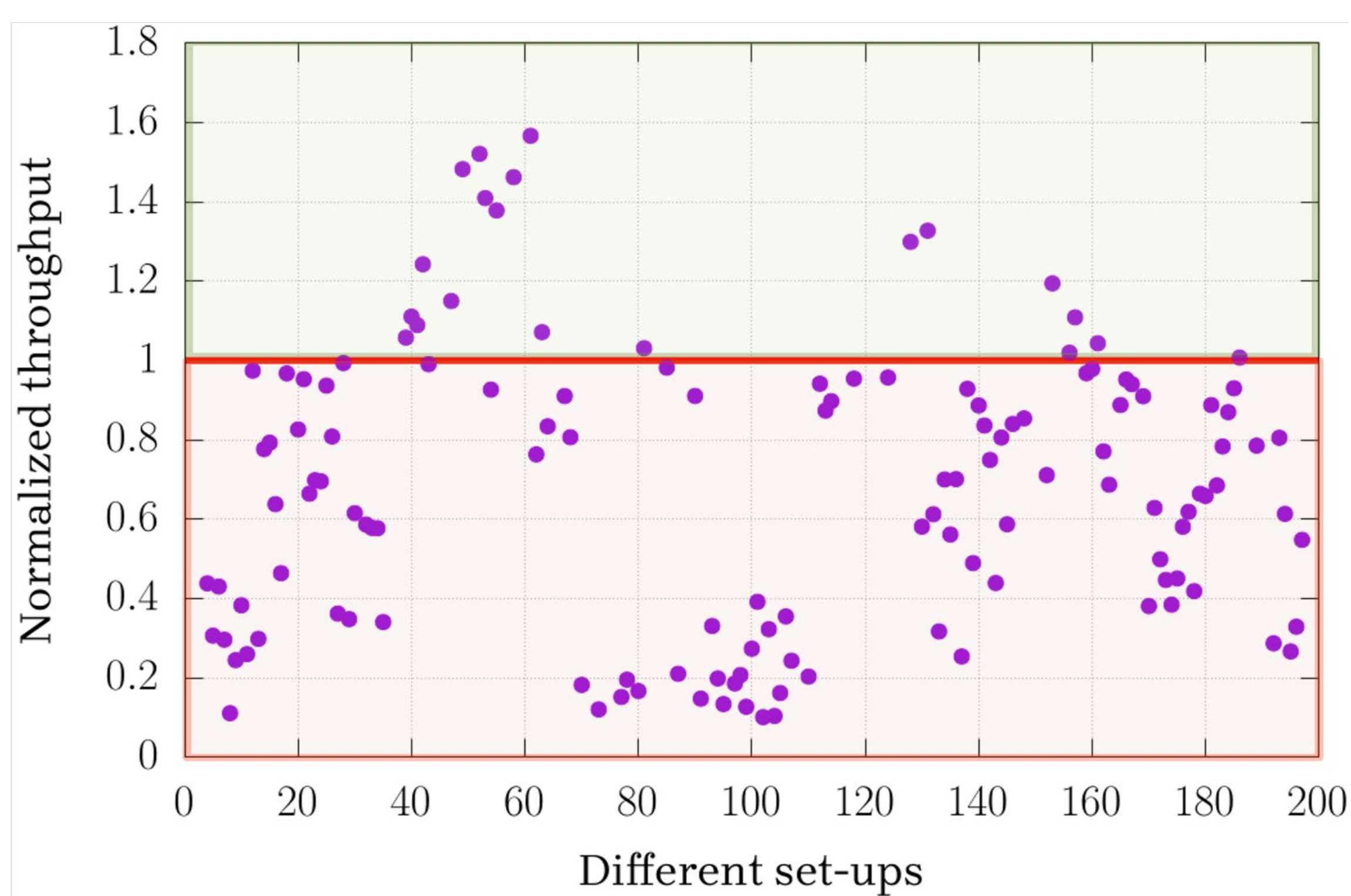
Vout ENABLED	
12.00 V	
Inst Power	
-.-- mA	

CAPTURE STATS

|	
Time	140.98 s
Samples	704903
Consumed Energy	13034.92 uAh
Average Power	3.99 W
Average Current	332.85 mA
Average Voltage	11.98 V
Expected Battery Life	3.00 hrs

Future Work

```python
from Monsoon import (
    HVPM,
    sampleEngine
)

def main():

    # Declare Power Monitor
    Mon = HVPM.Monsoon()
    # Connect to Target
    Mon.setup_usb()

    # Set Voltage
    Mon.setVout(8.0)
    # Initialize Sampler
    engine = sampleEngine(Mon)
    # Set Engine Output
    engine.ConsoleOutput(True)
    # Capture 5000 Samples
    engine.startSampling(5000)

if __name__ == "__main__":
    main()
```


https://github.com/ColeDumas
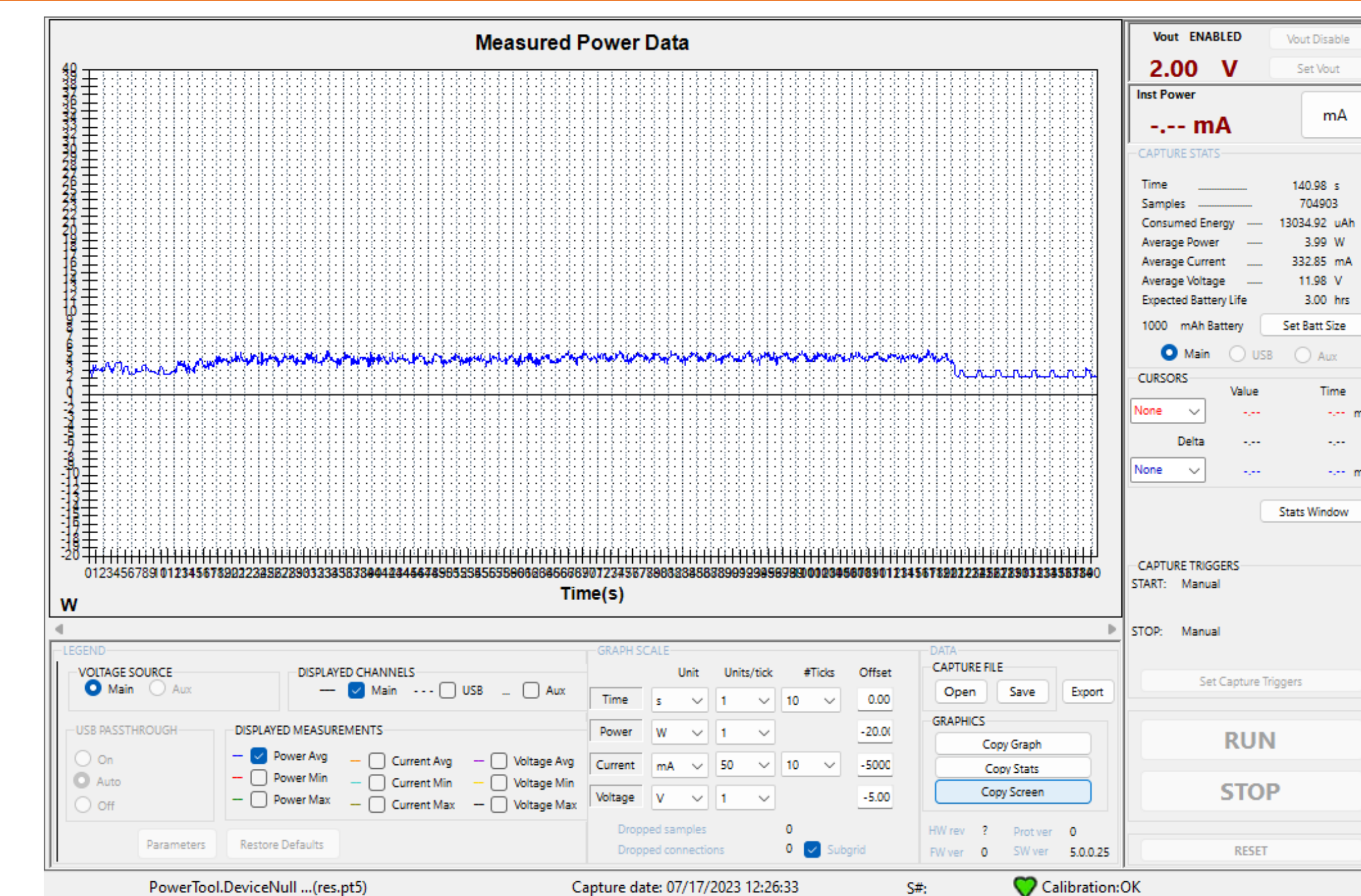
References

Wu, Carole-Jean, et al. "Machine learning at facebook: Understanding inference at the edge." *2019 IEEE international symposium on high performance computer architecture (HPCA)*. IEEE, 2019.

Acknowledgements