Hybrid Task Scheduling for Optimized Neural Network Inference for Skin Lesions in Resource-Constrained Systems

Diogen Babuc, Teodor-Florin Fortiş

Computer Science Department, West University of Timişoara

Methodology & Results

Methodology

- ▶ **EDF scheduling**: Prioritizes tasks based on deadlines.
- ▶ **DVFS integration**: Adjusts processor frequency dynamically.
- ▶ **Hybrid approach**: Balances execution speed and power efficiency.

Performance Evaluation

- ▶ **Miss rate reduction**: 10% (Baseline EDF) $\rightarrow$ 4% (Hybrid EDF + DVFS).
- ▶ **Energy savings**: 33% reduction in energy consumption.
- ▶ **GPU utilization**: 75% efficiency improvement.

Conclusion

- ▶ Enhances real-time AI inference for healthcare applications.
- ▶ Future work – Extend to multiple deep learning models and adaptive AI scheduling.