Interdisciplinary Project, Forschungspraxis, Assistant (Student)

Working Student/Research Internship - On-Device Training on Microcontrollers

We are seeking a highly motivated and skilled student to replicate a research paper that explores the application of pruning techniques for on-device training on microcontrollers. The original paper demonstrated the feasibility of deploying deep neural networks on resource-constrained devices, and achieved significant reductions in model size and computational requirements while maintaining acceptable accuracy.

Responsibilities:

- Extend our existing framework by implementing the pruning techniques on a microcontroller-based platform (e.g., Arduino, ESP32)
- Replicate the experiments described in the original paper to validate the results
- Evaluate the performance of the pruned models on various benchmark datasets
- Compare the results with the original paper and identify areas for improvement
- Document the replication process, results, and findings in a clear and concise manner

Requirements:

- Strong programming skills in C and Python
- Experience with deep learning frameworks (e.g., TensorFlow, PyTorch) and microcontroller-based platforms
- Familiarity with pruning techniques for neural networks is a plus
- Excellent analytical and problem-solving skills
- Ability to work independently and manage time effectively
- Strong communication and documentation skills

Contact

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Advisors

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