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CLOUD STARS

Upskilling in Sustainable Cloud-Native & AI through Learning Spaces

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New educational technologies allow students around the world to get hands-on training on how to build more sustainable and scalable software applications. Cyber-Physical Immersive Learning Spaces (CPILS) are offering such technologies with private cloud & AI stacks on portable devices that can be operated anywhere thanks to solar power and power-adaptive computation. Students can use local Large Language Models (LLMs), Knative and other tools to build applications that degrade gracefully in times of reduced power supply or connectivity. Cloudstars alumnus Atik Santellán and master student Julian Deutsch have contributed to the system under guidance of Cloudstars alumnus Josef Spillner. The work has been presented at IEEE IC2E 2025 as well as on sustainability events such as DINAcon 2025 in Switzerland.

The experience gained during recent secondments concerning rapid intent-driven prototyping of new cloud applications is now also reflected in CPILS. Students can use tools like KubeVibe to auto-generate code, containerisation and orchestration files to realise new functionality based on high-level intent expression. A January 2026 exam has proven this to work even under time constraints where students built and deployed a fully functional Kubernetes-hosted cloud application within few minutes. Within the ongoing debates about usefulness and resource intensity of LLMs, we contribute a pragmatic approach and make it available to other educational institutions.

CPILS Website: http://cpils.servicelaboratory.ch/

KubeVibe Website: http://kubevibe.servicelaboratory.ch/

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