



VSC – Vienna Scientific Cluster

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VSC Training and Education • <https://vsc.ac.at/training> • training@vsc.ac.at

Certificate of Attendance

Aleksander Kalacun

took part in the online course on July 10, 2025

Profiling AI Software Bootcamp

The Profiling AI Software Bootcamp covered the process and tools needed to profile AI and machine learning applications to fully utilize high-performance systems. Participants learned to profile applications using NVIDIA Nsight™ Systems, a system-wide performance analysis tool; analyze and identify optimization opportunities; and improve performance of applications to scale efficiently across systems of any quantity or size of CPUs and GPUs.

Throughout the bootcamp, attendees with teaching assistants on hand participated in hands-on activities to apply these learned skills to real-world problems.

Topics covered:

- Overview of NVIDIA Nsight Systems
- GPU profiling
- Distributed Data Parallelism
- Model Parallelism
- Multi-GPU & Multi-node Profiling
- Hands-on exercises throughout

Lectures and exercises were developed by NVIDIA and taught by Tosin Adesuyi (NVIDIA) with teaching assistants for the hands-on parts: Claudia Blaas-Schenner (VSC), Ivan Vialov (VSC), Martin Pfister (VSC), Moritz Siegel (VSC), Siegfried Höfner (VSC), Simeon Harrison (VSC), Maksym Deliyergiyev (HLRS), Tobias Haas (HLRS), Luis Cifuentes (JSC), Xin Liu (JSC), Mares Barekzai (LRZ), Luka Filipovic (UDG), and Maciej Wielgosz (Cyfronet). Labs and code challenges were done on the LEONARDO Booster partition using NVIDIA A100 GPUs.

The bootcamp contained lectures, demos, and hands-on labs of **4.5 hours** (breaks excluded) and is equivalent to **0.25 ECTS**.

The bootcamp was co-organized by VSC Vienna, IT4I, HLRS, JSC, LRZ, UDG, Cyfronet, LiU, RISE, IZUM, OpenACC.org, and NVIDIA for **EuroCC Austria**, **EuroCC Czechia**, **EuroCC@GCS** (Germany), **EuroCC Montenegro**, **EuroCC Poland**, **ENCCS** (Sweden), and **EuroCC Slovenia**, all National Competence Centres for High-Performance Computing and partially funded by the **EuroCC 2 project** (see also back page).

Course description: <https://events.asc.ac.at/e/Alprofiling-2025-07>

Vienna, July 10, 2025

Dr. Claudia Blaas-Schenner
Head of Training and Education
VSC Research Center, TU Wien



Supporting organizations and projects:

The **Profiling AI Software Bootcamp** was co-organized by the Vienna Scientific Cluster (**VSC**), IT4Innovations National Supercomputing Center (**IT4I**), High-Performance Computing Center Stuttgart (**HLRS**), Jülich Supercomputing Centre (**JSC**), Leibniz Supercomputing Centre (**LRZ**), University of Donja Gorica (**UDG**), Academic Computer Centre Cyfronet AGH (**Cyfronet**), Linköping University (**LiU**), Research Institutes of Sweden (**RISE**), HPC Vega at IZUM (**IZUM**), **OpenACC organization**, and **NVIDIA** for **EuroCC Austria**, **EuroCC Czechia**, **EuroCC@GCS** (Germany), **EuroCC Montenegro**, **EuroCC Poland**, **ENCCS** (Sweden), and **EuroCC Slovenia**, all National Competence Centres for High-Performance Computing and partially funded by the **EuroCC 2 project**.

