

Certificate

The undersigned hereby certifies that

Vasileios Tsouvalas

██████████
██████████ has met all the requirements of the educational program for Ph.D. students set forth by the interuniversity research school ASCI, the Advanced School for Computing and Imaging.

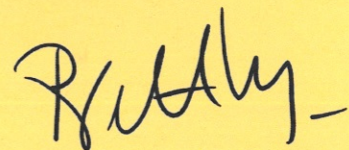
Further, he certifies that the above mentioned research has taken place within the framework of the ASCI research program and has resulted in a doctoral thesis entitled:

*Chaos to Harmony: Taming
Heterogeneity and Communication
Bottlenecks in Federated Learning*

The thesis advisors were:

Prof.dr. ir. N. Meratnia
Dr. T. Ozcelebi

Delft, July 2025



Prof.dr. R.C. Veltkamp
Scientific director, ASCI

