

Paper Summary & Critique

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| Paper Title | NeuroScaler: neural video enhancement at scale |
| DOI | 10.1145/3544216.3544218 |
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| Course | COMP 691 |
| Lecture | 5 |

Summary

The authors of this paper introduce a novel neural-network based system to enhance real-time video quality at scale, while significantly reducing the computational overhead of doing so. Instead of up-scaling every frame, certain *anchor* frames are chosen to be up-scaled instead.

Strengths

- **Adaptable:** The deep neural network at the core of the system can be dynamically updated using a neural architecture search (NAS) system.
- **Flexible:** The system is codec-agnostic, which makes it widely compatible.
- **Cost-effective:** Thanks to the anchor selector, hybrid codec and GPU context switching, the NeuroScaler system is able to perform its inference with a far lighter computational load than its alternatives (LiveNAS).