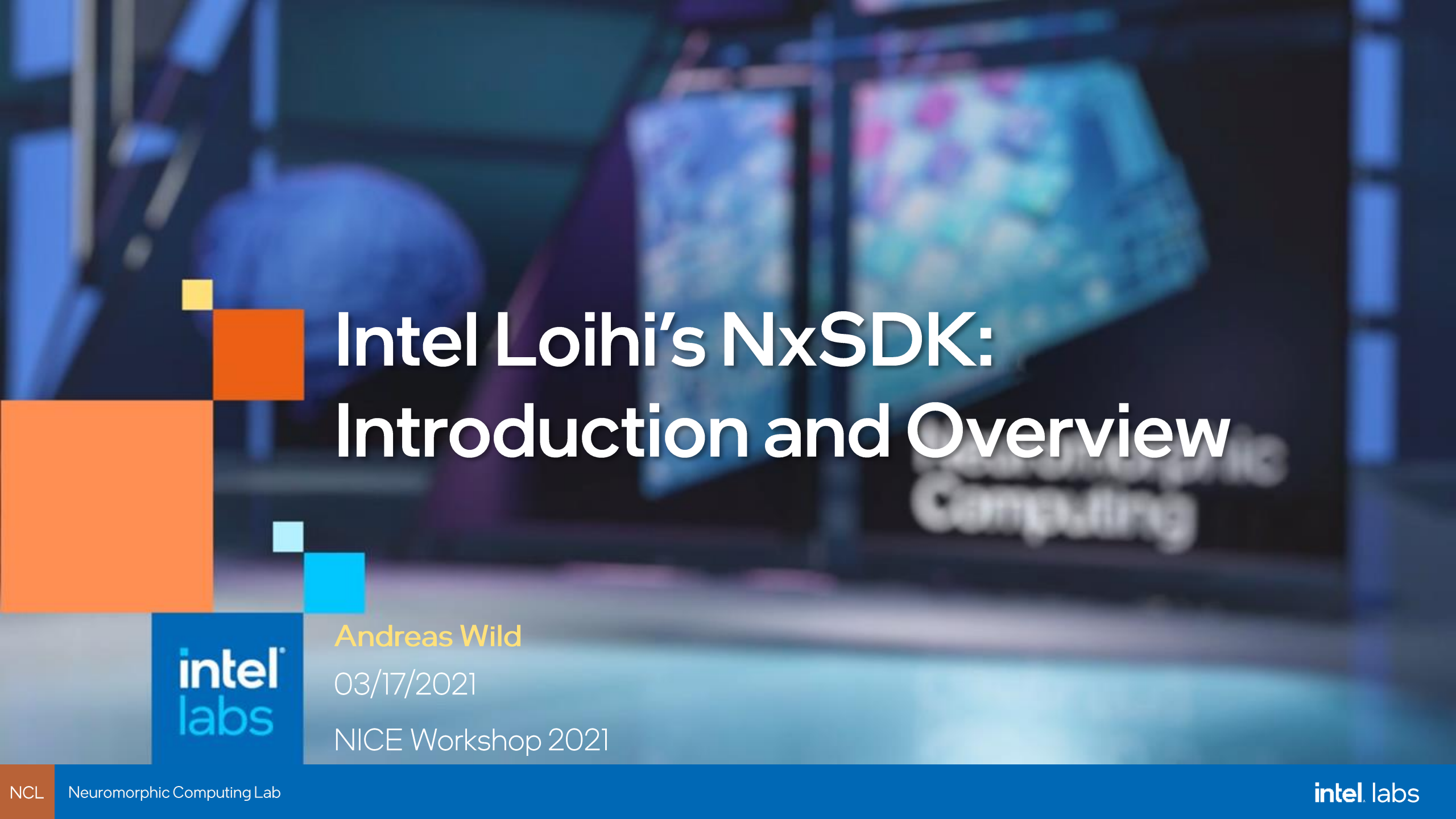

# Intel Loihi's NxSDK: Introduction and Overview

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03/17/2021

NICE Workshop 2021

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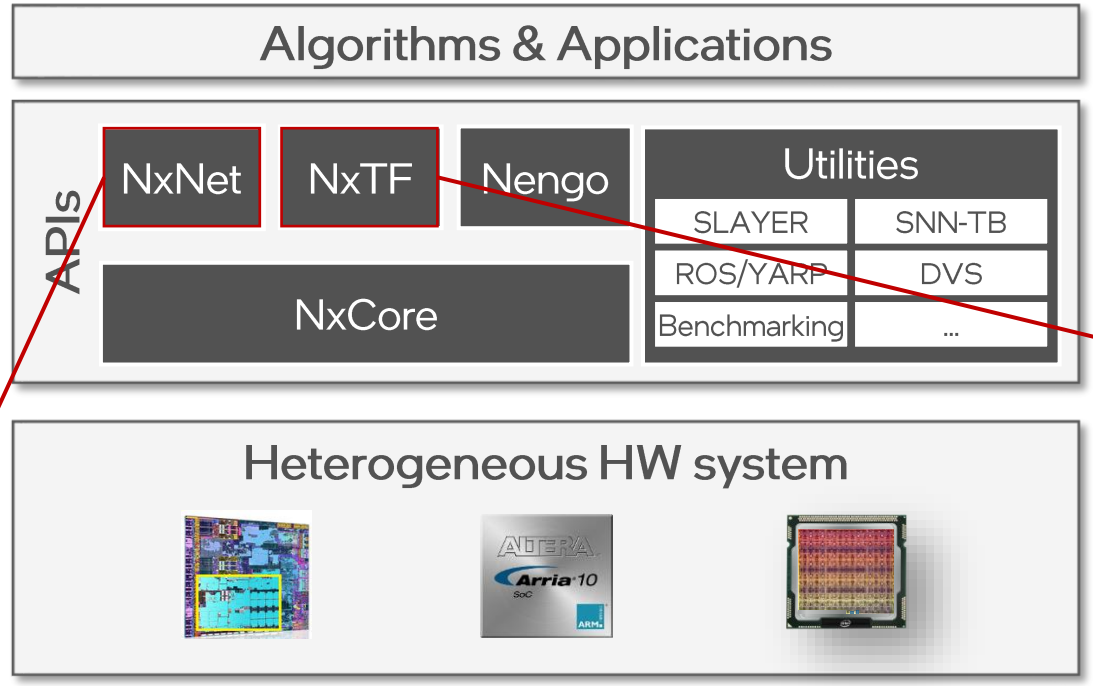
# NxSDK Overview

**NxNet:**

- General purpose API & compiler
- Configures neurons, connections, learning rules
- See architectural deep dive @ NICE 2019

https://youtu.be/Bf4CskHBTOQ
Or google: "Nice 2019 presentations"




**NxTF:**

- Specialized for deep learning
- Inherits Keras API
- Resource-efficient CNN compiler
- Supports SNN-TB or SLAYER for training
- For details see:

Rueckauer et al.
https://arxiv.org/pdf/2101.04261.pdf
https://github.com/intel-nrc-ecosystem

New **Lava** SW framework under development to unify NxNet, NxTF, NxCore, training frameworks (i.e. SLAYER), high level abstractions, and more!

# Tutorial agenda

- A fast and efficient constraint satisfaction solver on Loihi

  Gabriel Fonseca Guerra

- SLAYER for Loihi

  Sumit Bam Shrestha

- Performance characterization on Loihi

  Garrick Orchard

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