

# JLESC: Collaboration with RIKEN

## Investigation of heterogeneous platform for deep learning

We are be investigating a heterogeneous platform for deep learning in which GPUs are applied for training and FPGAs are initially used for inference, and later on will be adapted for training with customizable data types. Ultimately, we will be looking at how to utilize both GPUs and FPGAs for training and inference in a tightly coupled system.

### People

Yiyu Tan, RIKEN AICS, research scientist

Volodymyr Kindratenko, NCSA, senior research scientist

- Janish Yerra, ECE, undergraduate student
- Yike Li, ECE, Undergraduate student

### Links

Proposal: [JLESC\\_collaboration\\_proposal.pdf](#)

System at NCSA: [Xilinx Kintex UltraScale FPGA KCU1500 Acceleration Development Kit](#)

SDK documentation: <https://www.xilinx.com/products/design-tools/software-zone/sdaccel.html>

## Work in progress

### Week of September 4th

- Go over UG1023 and UG1021 tutorials
- Running tools on iridium:

```
sdx &
```

- make sure your workspace is in `/home/NetID/project/workspace`
  - device is `xilinx:kcu1500:4ddr-xpr:4.0`
- Copy examples to your own space:

```
cd ~/project
cp -r /opt/Xilinx/SDx/2017.1/samples .
cp -r /opt/Xilinx/SDx/2017.1/examples .
```

- you now have your own copy of samples and examples in `~/project`
- up-to-date list of examples is in [https://github.com/Xilinx/SDAccel\\_Examples](https://github.com/Xilinx/SDAccel_Examples)

### Week of September 11th

- Continue with UG1023 and UG1021 tutorials

## Documentation

Tutorials: [https://www.xilinx.com/html\\_docs/xilinx2017\\_2/sdaccel\\_doc/index.html](https://www.xilinx.com/html_docs/xilinx2017_2/sdaccel_doc/index.html)

Examples: [https://github.com/Xilinx/SDAccel\\_Examples](https://github.com/Xilinx/SDAccel_Examples)

- **UG1023** - [SDAccel Environment User Guide \(ver2017.2\)](#)
- **UG1021** - [SDAccel Environment Tutorial: Introduction \(ver2017.2\)](#)

### Development documentation

- **UG1207** - [SDAccel Environment Optimization Guide \(ver2017.2\)](#)
- **UG1253** - [SDx Pragma Reference Guide \( ver2017.2\)](#)

### Hardware-related

- **UG1238** - [SDx Environments Release Notes, Installation, and Licensing Guide \(ver2017.2\)](#)
- **UG1164** - [SDAccel Environment Platform Development Guide \( ver2017.2\)](#)
- **UG1234** - [SDAccel Platform Reference Design User Guide: Developer Board for Acceleration with KCU1500 \(ver2017.2\)](#)