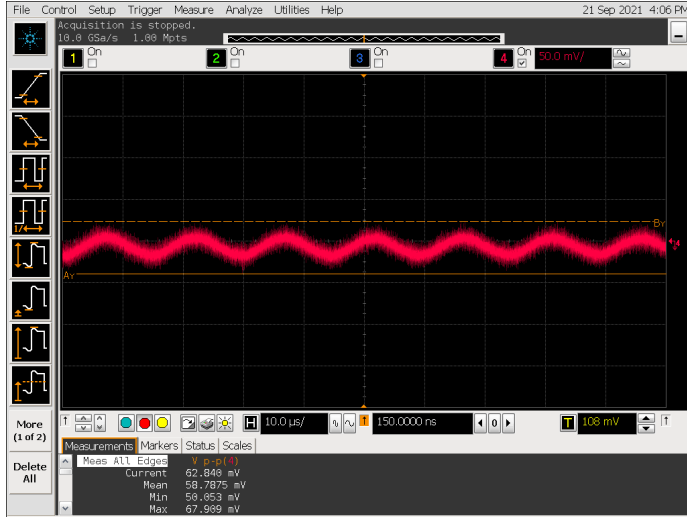
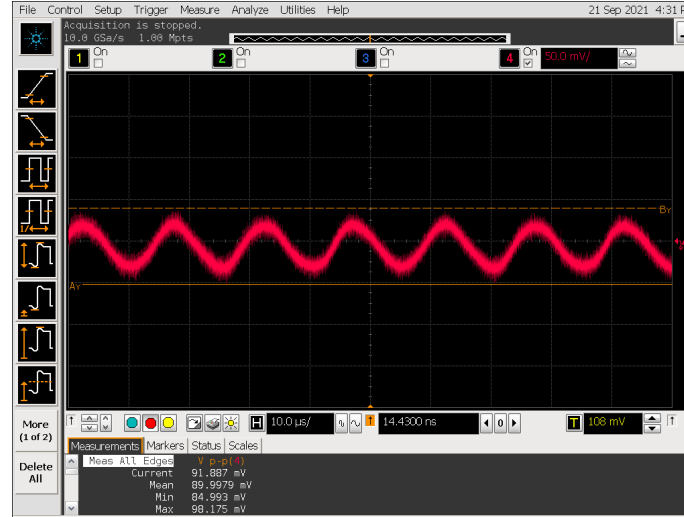


- Oscillations on ibiasp, amplitude depends on CaR board
- Fixed with capacitor

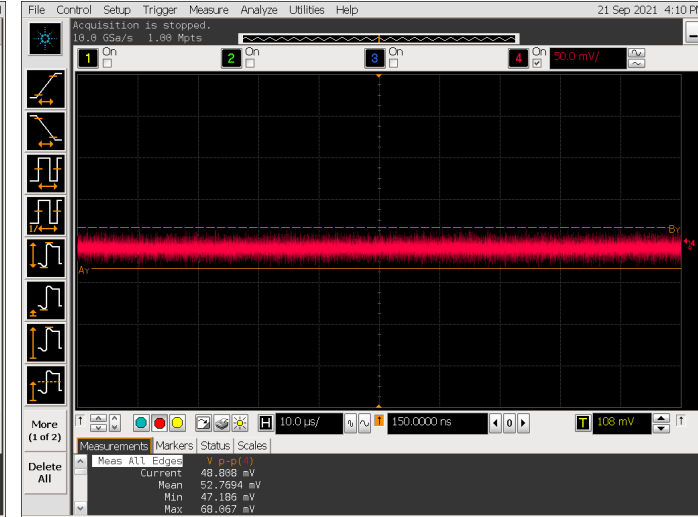
CaR board 1, no capacitor



CaR board 2, no capacitor



with capacitor

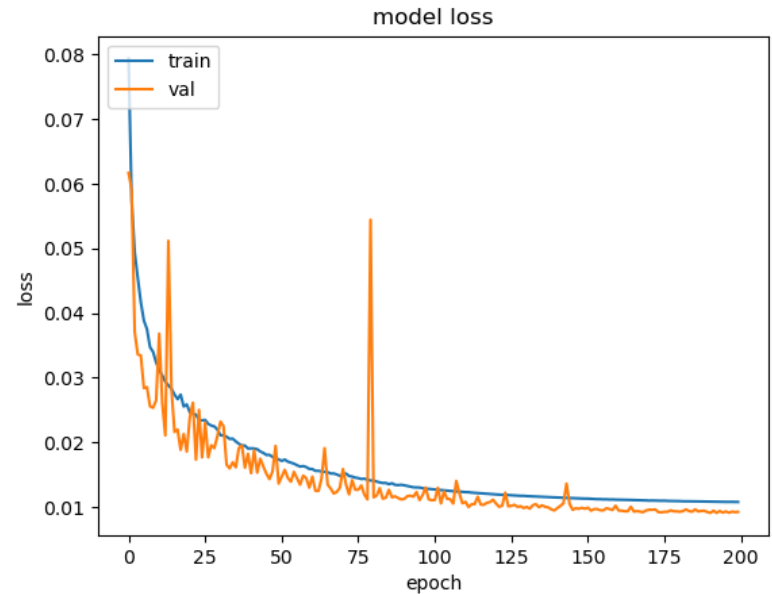
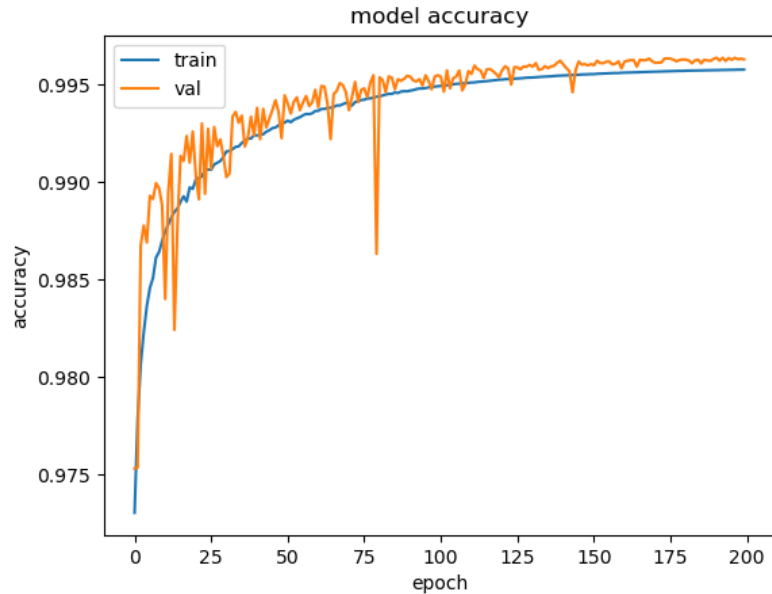


# Pixel decoding

- Idea: generate training data from real single pixel data
- Combine single pixel events into larger events and randomize clusters, ToT, timewalk...
- Keep pixel-specific properties such as position, pulse width, length of delay lines...
- For now: simple model, pick seed pixel and N neighbouring pixels, no proper modeling of charge sharing, cluster size  $\leq 5$

# Pixel decoding

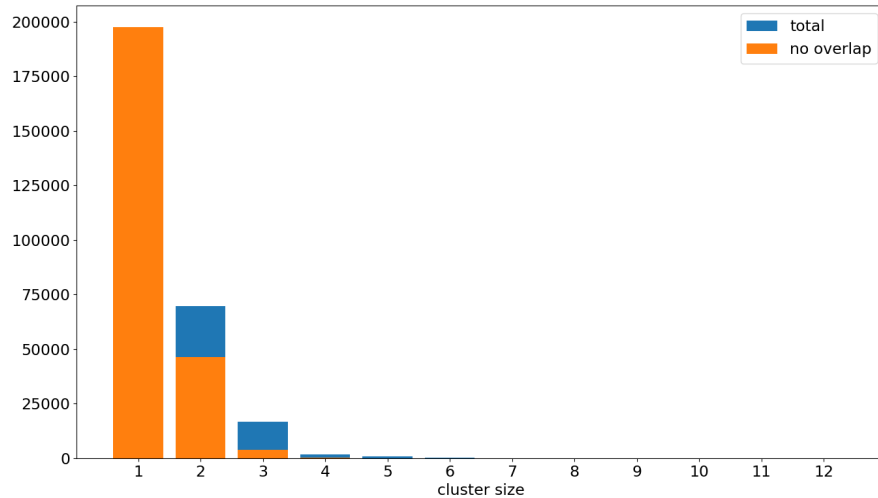
- 60 inputs (3 channels x 5 pixels x 2 peaks per pixel x 2 edges per peak)
- One output per pixel (64) between 0 and 1
- 3 hidden layers



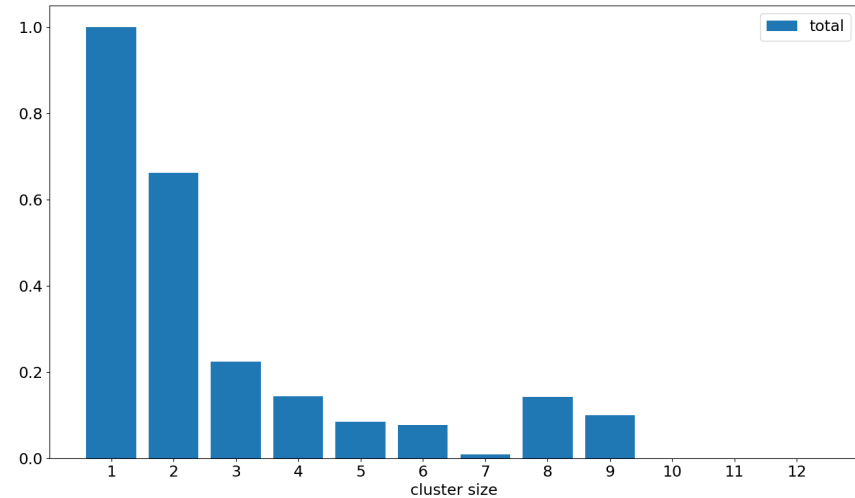
# Pixel decoding

- Use data from 20um matrix, clusters are mostly 1, 2 or 3 pixels

Cluster size, test beam data (20um)

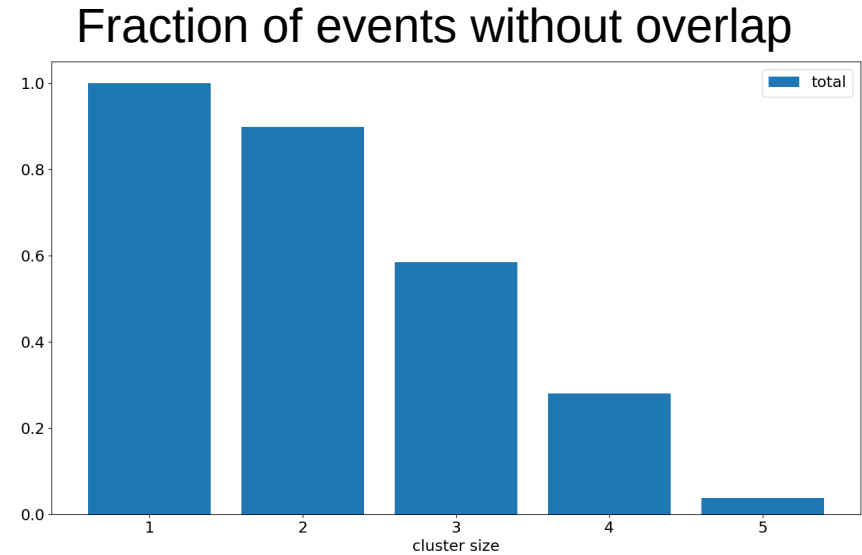
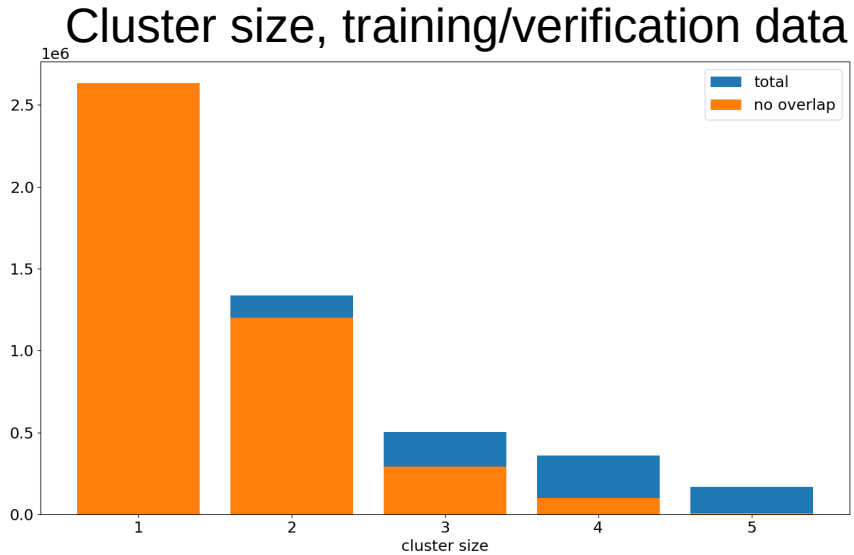


Fraction of events without overlap



# Pixel decoding

- Cluster size for training data is set to 1: 40%, 2: 30%, 3-5: 10% each



# Pixel decoding

- Verification with separate data set:

	Cluster size 1	2	3	4	5	total
Reconstructed correctly	99.98%	98.30%	81.94%	43.11%	12.47%	90.4%
Average number of pixels reconstructed incorrectly per incorrect event	1.33	1.92	1.81	2.19	3.44	