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Real-time beam detection and tracking from pinhole imaging system based on computer vision with TensorFlow

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At ALBA Synchrotron the pinhole imaging system is able to see 6 beam images at once. Each beam image has its own properties, such as pinhole size, its point spread function (PSF), copper filter attenuation and region of interest (ROI), all of which impact the source beam size calculation. For now, all these parameters are observed and controlled manually. An artificial neural net (ANN) is pointed at these beam images and trained to recognize which one it is looking at in real time, with the end goal to automate the whole beam image analysis process.

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