In the last decade there has been a spectacular rise of large data volumes acquired in X-ray diffraction experiments. When I started my PhD we were running at FLASH with 1 Hz. Nowadays we’re collecting data at the European XFEL at a peak rate into the megahertz. This has enabled the development of new techniques which exploit this richness and were not possible before.

In this talk I will present the evolution of X-ray diffraction imaging, and in particular the Flash X-ray Imaging experiments, and discuss what new techniques might be over the horizon and how to best make use of this wealth of data to extract as much new knowledge as possible.