Fast radio bursts are an enigmatic new class of extragalactic radio transient. Surveys such as CHIME, ASKAP, and Apertif are transforming the field with orders-of-magnitude increase in detection rate, real-time arcsecond localization, and simultaneous multi-frequency coverage. Interpreting this deluge of data requires new tools to separate instrumental from intrinsic phenomena. In this talk I will review the development in FRB science over the last decade. I will introduce a method for inferring the true, underlying properties of FRB from their observed distributions. Next, I will discuss our survey ALERT in the Netherlands, which detects FRBs with Apertif at 1400 MHz and triggers LOFAR at 150 MHz where the burst arrives roughly one minute later. Finally, I will speculate on such fundamental questions as, “Do all FRBs repeat?” and “Can we ever put them to use as probes of fundamental physics and cosmology?”.