The Subaru Coronagraphic Extreme Adaptive Optics (SCExAO) project is an instrument on the Subaru telescope that is pushing the frontiers of what is possible with ground-based high-contrast imaging of extrasolar planets. In this talk, I describe key breakthroughs in SCExAO’s wavefront sensing and coronagraphy that yield extremely high Strehl ratio corrections and deep planet-to-star contrasts, even for optically faint stars. SCExAO is coupled to a near-infrared integral field spectrograph -- CHARIS -- yielding robust planet spectral characterization. I describe our first full year of science results with SCExAO, focusing on characterization of known exoplanetary systems -- kappa And and LkCa 15 -- and how these observations clarify the planet formation environment in these systems. Finally, I describe the technical path ahead for SCExAO: how it will mature key technologies that could be used for future NASA flagship missions and carry out complementary/precursor science observations for missions like WFIRST-CGI and ground-based extremely large telescopes.