Interactive Evolution of Camouflage

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This is an alpha test version of software for “interactive evolution of camouflage” as described in my 2011 paper: Interactive Evolution of Camouflage. This 2021 app evo_camo_game is built from new components: the TexSyn library for procedural texture synthesis, and the LazyPredator library for evolutionary optimization via genetic programming. For more information see the development blog for TexSyn.

Very quick overview

This program is a crude simulation of the evolution of camouflage in nature. There is a predator-prey system. Software for texture optimization plays the part of an evolving population of camouflaged “prey.” The human user serves as a predator hunting its prey with vision. This can be seen as a sort of minimalist “game” or a human based computation. The app displays a window with a random portion taken from a given set of photographs. Over that background are drawn three randomly positions disks of synthetic texture—three “prey.” The human user/player/predator then decides which of the three textures/prey is most conspicuous or least well camouflaged, indicating their selection by clicking/tapping on that prey. The window will go blank then display the next step. Runs typically consist of 1000 such steps or more. They can be stopped at any time. Results are currently saved during as image files, and texture “source code” in text files, as described below.