Significance: A two-dimensional covalent organic framework (2D-COF) catalyzed the alkylation or arylation of quinoxaline-2-ones with alkyl- or aryl-hydrazines, respectively, under air with blue LED irradiation to give the corresponding C3-alkyl- or C3-arylquinoxaline-2-ones in ≤89% yield (44 examples). Primary, secondary, and tertiary alkyl and cycloalkyl hydrazines successfully gave the corresponding C3-alkylated products.

Comment: The authors have previously reported the use of 2D-COF in other photocatalytic reactions (Green Chem. 2019, 21, 2905). In the reaction of 1-methylquinoxalin-2-one with cyclohexylhydrazine hydrochloride, the catalyst was reused five times without significant loss of its activity.