

**Title: Proximal Newton-type methods for minimizing composite functions**

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We describe a family of methods for solving a class of convex optimization problems common to bioinformatics, computational and systems biology. This family of methods accounts for the curvature of the objective function, but retains the simplicity of commonly used first-order methods. We show these methods inherit the desirable convergence behavior of Newton-type methods, even when search directions are computed inexactly. Several popular methods tailored to problems arising in bioinformatics are part of this family, and our analysis yields new convergence results for some of these methods.