

Annotated Bibliography

Robotics Group

References

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The class of L1-regularized optimization problems has received much attention recently because of the introduction of “compressed sensing,” which allows images and signals to be reconstructed from small amounts of data. Despite this recent attention, many L1-regularized problems still remain difficult to solve, or require techniques that are very problem-specific. In this paper, we show that Bregman iteration can be used to solve a wide variety of constrained optimization problems. Using this technique, we propose a “split Bregman” method,

which can solve a very broad class of L1-regularized problems. We apply this technique to the Rudin–Osher–Fatemi functional for image denoising and to a compressed sensing problem that arises in magnetic resonance imaging.