Implementing an SVM
A shot in the dark

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***Abstract*—The abstract goes here.**

I. Introduction

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A. Subsection #1

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II. Implementation

A. Dual Representation (from Eqn. 7.2)

$$\mathbf{L} = \sum_{N} a_n - \frac{1}{2} \sum_{n} \sum_{m} a_n a_m t_n t_m \mathbf{K} \tag{1}$$

B. Quadratic Programming Problem

$$\min_{\mathbf{x}} \frac{1}{2} \mathbf{x}^T \mathbf{P} \mathbf{x} - \mathbf{Q}^T \mathbf{x} \tag{2}$$

C. Parameters for Quadratic Programming

$$P = \sum_{n} \sum_{m} t_n t_m \mathbf{K} \tag{3}$$

$$Q = \begin{pmatrix} -1 & -1 & -1 \\ -1 & -1 & -1 \\ -1 & -1 & -1 \end{pmatrix} \tag{4}$$

D. Constraints

$$\mathbf{Gx} \preceq \mathbf{h} \tag{5}$$

III. Experiments

After the SVMs were all trained using the bootstrapping method, we used a committee-waterfall approach to determine the best class for each test point. In order to do this, the SVMs are grouped by classifier, with 7 independently trained SVMs per each of the 8 classifiers. Each test point is run through each of the 7*8=56 SVMs. When committee results are gathered, if the point has less than 4 committee votes for each classifier, it is unclassified. If the point has 4 or more votes from just one classifier group, it is classified to that group. If the point has 4 or more votes from multiple classification committees, it is classified to the committee with the most votes, or in the event of a tie, to a random choice between the tie.

IV. Conclusion

Conclusion paragraph text goes here.

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References

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