Rank Optimization

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Abstract

Your abstract.

1 Introduction

We devise here an analytical solution for the rank optimization for the approximation through random projections. This solution is then compared to the numerical approach.

2 Some examples to get started

2.1 Fillig equation

$$u' = -\frac{u^2}{u^2+v^2}/p \tag{1}$$

$$v' = -\frac{v^2}{u^2+v^2}/n \tag{2}$$

we deduce

$$\frac{u'}{u^2} - \frac{v'}{v^2} = p/n \tag{3}$$

$$pu' + nv' = 1 \tag{4}$$

it follows

$$\frac{1}{u} - \frac{1}{v} = \frac{p}{n}t + k \tag{5}$$

$$pu + nv = t + l \tag{6}$$

Hence

$$n(\frac{p}{n}t+k)u^2 + ((p+n) + (t+l)(\frac{p}{n}t+k))u - (t+l) = 0 \tag{7}$$

giving the solution

$$u = \frac{-(l+t)(at+k) - (n+p) - \sqrt{((l+t)(at+k)+n+p)^2 + 4n(l+t)(at+k)}}{2n(at+k)} \tag{8}$$

with $a = p/n$

2.2 How to add Citations and a References List

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