

论文

广义Jensen-Schur测度在医学图像配准中的应用

胡顺波¹,王广泰²,刘常春²,邵鹏³

- 1. 临沂师范学院物理系
- 2.
- 3. 阿尔伯塔大学 放射与诊断影像学系

摘要:

使用互信息或归一化互信息测度进行医学图像配准时,由于噪声、模态、插值等影响,测度函数存在许多局部极值,收敛范围较窄,有可能导致误配准。为了克服上述缺点,定义了广义Jensen-Schur测度,利用巴特沃思函数对自变量值的非线性压缩功能,成功地消除了PV插值伪极值点。从测度曲线光滑性、抗噪鲁棒性、收敛性能方面,对四种新构造的广义Jensen-Schur测度、互信息和归一化互信息进行了比较和分析。实验结果表明,新构造的JS22和JS23测度在以上三个方面的性能都优于其他测度。

关键词: 图像配准 广义Jensen-Schur测度 互信息 PV插值 image registration generalized Jensen-Schur measure mutual information PV interpolation

Application of generalized Jensen-Schur measure in medical image registration

Abstract:

For the influences of noise, interpolation and image modality, the medical image registration method based on mutual information or normalized mutual information would cause local extrema, small convergence area, and even inaccurate registration. A new generalized Jensen-Schur measure was defined, which used "nonlinear increasing" of butterworth function to eliminate false extrema. Four new generalized Jensen-Schur measures, mutual information and normalized mutual information were analyzed and compared by applying them to rigid registration. The results of tests show that the new constructed JS22 and JS23 measures outperform other measures in noise immunity and convergence, and eliminating false extrema caused by PV interpolation.

Keywords:

收稿日期 2008-11-21 修回日期 2009-01-11 网络版发布日期 2009-06-09

DOI:

基金项目:

国家级基金

通讯作者: 胡顺波

作者简介:

参考文献:

本刊中的类似文章

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(713KB)
- ▶ [HTML全文]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 图像配准
- ▶ 广义Jensen-Schur测度
- ▶ 互信息
- ▶ PV插值
- ▶ image registration
- ▶ generalized Jensen-Schur measure
- ▶ mutual information
- ▶ PV interpolation

本文作者相关文章

- ▶ 胡顺波
- ▶ 王广泰
- ▶ 刘常春
- ▶ 邵鹏

PubMed

- ▶ Article by Hu,S.B
- ▶ Article by Yu,A.T
- ▶ Article by Liu,C.C
- ▶ Article by Shao,p

反馈人	<input type="text"/>	邮箱地址	<input type="text"/>
反馈标题	<input type="text"/>	验证码	<input type="text" value="4593"/>