Implementasi algoritma in-house registrasi citra 2D/2D pada kasus kanker nasofaring = Implementation in-house algorithm image registration 2D/2D in the case of nasopharyngeal cancer

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Abstrak

Telah dilakukan pengembangan sistem registrasi 2D/2D untuk verifikasi posisi pasien radioterapi berbasis bahasa C++ dengan tiga metode yaitu rigid transform, Viola-Wells mutual information dan Mattes mutual information. Implementasi sistem registrasi citra otomatis yang dikembangkan menggunakan data sekunder 34 pasien kanker nasofaring didapatkan hasil koreksi maksimum untuk rigid transform sebesar (2,79 ± 0,41) mm, Viola-Wells mutual information sebesar (2,77 ± 0,64) mm dan Mattes mutual information sebesar (2,69 ± 0,68) mm. Namun dalam proses uji validasi menggunakan fantom CIRS tidak berhasil dilakukan karena kontras citra EPID setelah melalui tahapan pre-processing tidak jauh berbeda.

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Has been developed registration system 2D/2D for verifying patient’s radiotherapy position based on C++ languages which consist of 3 registration methods such as rigid transform, Viola-Wells mutual information and Mattes mutual information. Implementation of automatic image registration system that has been developed using secondary data from 34 Nasopharyngeal Cancer patients are obtained maximum correction at about (2,79 ± 0,41) mm, (2,77 ± 0,64) mm and (2,69 ± 0,68) mm for rigid transform, Viola-Wells mutual information and Mattes mutual information, respectively. However in the validation test using CIRS phantom is not success because the image contrast of EPID after pre-processing was not significantly different.