



El Departamento de Informática de la Universidad Técnica Federico Santa María tiene el agrado de invitar a la comunidad Universitaria al coloquio del Departamento de Informática. Esta presentación se realizará en el auditorio Claudio Matamoros (F-106), en la Casa Central el día **martes 6 de Enero a las 11:00** y por videoconferencia TBD, Campus Santiago, San Joaquín.

Título

Automated Analysis of Medical Images

Invitado



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Mini Bio

Stefan Pszczolkowski obtained his Computer Engineering and MSc. degree from the Pontifical Catholic University of Chile, where he was part of the GRIMA group. He is a PhD candidate in the Biomedical Image Analysis Group in the Department of Computing at Imperial College London, working under the supervision of Prof. Daniel Rueckert. His research interests are computer vision and medical image processing. He focuses on devising new techniques for the registration of medical images.

Resumen

The automated analysis of medical images plays an increasingly significant part in many clinical applications. Image registration is an important and widely used technique in this context. Examples of its use include, but are not limited to: longitudinal studies, atlas construction, statistical analysis of populations and automatic or semi-automatic parcellation of structures. Although image registration has been subject of active research since the 1990s, it is a challenging topic with many issues that remain to be solved. This thesis seeks to address some of the open challenges of image registration by proposing fast and robust methods based on the widely utilised and well established registration framework of B-spline Free-Form Deformations (FFD).

In this work, a statistical method have been incorporated into the FFD model, in order to obtain a fast learning-based method that produces results that are in accordance with the underlying variability of the population under study. Several comparisons between different statistical analysis methods that can be used in this context are performed. Secondly, a robust similarity measure is proposed that enables the registration of images affected by intensity inhomogeneities and images with pathologies, e.g. lesions and/or tumours. Furthermore, a method to improve the convergence of the B-Spline FFD method by learning a gradient projection using principal component analysis and linear regression is proposed.

Lugar y Fecha

6 de Enero de 2015, 11:00

Auditorio Claudio Matamoros (F-106).

Departamento de Informática, Valparaíso.

UTFSM

La charla se transmitirá en videoconferencia a TBD, Campus Santiago, San Joaquín.

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