

Computational vision and image processing applied to Dentistry

Thematic Session within VipIMAGE 2019

VII ECCOMAS Thematic Conference on Computational Vision and Medical Image Processing

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www.fe.up.pt/vipimage

web.fe.up.pt/~vipimage/nav/conference/sessions.htm

Description

Evolution of dental imaging and computerized technologies (based on Digital Images Processing, Pattern Recognition and Artificial Intelligence techniques) applied to Dentistry has increased over the last years. Many companies have developed hardware and software based on new imaging hardware and processing techniques, that can be applied in any field of Dentistry. 3D printing has been hailed as a disruptive technology that will change manufacturing. The technology has a particular resonance with Dentistry, and with advances in 3D imaging and modelling technologies such as cone beam computed tomography and intraoral scanning, and with the relatively long history of the use of CAD-CAM technologies in dentistry, it will become of increasing importance. Extra-oral scanners, face scans, dynamic navigation for dental implants, are some other examples.

At the dawn of precision dental medicine, various omics-based techniques as well as computational biology and “big data” processing could be applied accurately to improve the diagnosis, prognosis, treatment, and risk stratification of oral diseases. As an example, Pattern Recognition and Artificial Intelligence techniques may be applied to molecular data obtained from saliva. This fluid is one of the main research areas in Dentistry nowadays, allowing us to connect salivary molecular analytes to monitor therapies, therapeutic outcomes, as well as disease diagnostics and progression.

There's an import space for dental research in this area of dental informatics plus biomedicine. It's necessary to evaluate the usability, integration, functionality and efficiency of this technologies, in order to evaluate and optimize dental research / clinical treatments.

Topics of interest include (but are not restricted to):

- Intra, extra-oral and face scanners
- Cone-beam computed tomographies
- CAD-CAM technologies
- 3D impression
- 3D modelling technologies
- Guided implant surgery

Publications

The **proceedings book** will be **published by Springer** under the book series "[Lecture Notes in Computational Vision and Biomechanics](#)" and **indexed by Elsevier Scopus**.

A **special issue** of the Taylor & Francis international journal "[Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization](#)", indexed in Clarivate Analytics Emerging Sources, Elsevier Scopus and dblp, **will be published**. All authors of works presented in VipIMAGE 2019 will be invited to submit an extended version to the special issue.

Important dates

- **Submission of extended abstracts: May 31, 2019** (final deadline)
- Final Papers (non-mandatory): July 15, 2019

Organizers

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