Clinical studies

Sirius has been involved in several clinical studies

<table>
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<tr>
<th>Goal</th>
<th>Collaborations</th>
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<tbody>
<tr>
<td>Study of the retinal microcirculation in a Telmisartan treatment</td>
<td>Hospitals of Santiago, Barbanza, Calde (Spain); Girona Biomedical Research Institute (Spain); Boehringer Ingelheim</td>
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<tr>
<td>Analysis of the relation between AVR and Target Organ Damage</td>
<td>Girona Biomedical Research Institute (Spain); several Girona Health Care Centers (Spain)</td>
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<tr>
<td>Correlation between retinal microcirculation and macrocirculation</td>
<td>Hospitals of Santiago (Spain) and San Joao (Portugal); Girona Biomedical Research Institute (Spain)</td>
</tr>
<tr>
<td>Development of a clinical tool for microaneurysm turnover computation</td>
<td>Hospital of A Coruña (Spain)</td>
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</tbody>
</table>

References


System for the Integration of Retinal Image Understanding Services

VARPA Group
University of A Coruña

GVA Group
University of Santiago de Compostela

Internal Medicine Service
University Hospital Complex of Santiago

Institute of Ophthalmology Gómez-Ulla
Santiago de Compostela

Contact

Email varpa@udc.es and ask us for a free trial.
What Sirius offers

- User-friendly web interface
- Environment for collaborative work
- Suitable for large-scale screening procedures
- Continuous integration of automatic image processing algorithms
  - Clinically validated by medical experts
  - Fast and objective results
  - Time and cost savings

System Architecture

Main features

<table>
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<th>User management</th>
<th>Patient management</th>
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<td>Protected access</td>
<td>Patient details</td>
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<td>Account management</td>
<td>Medical histories</td>
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<td>Different user roles</td>
<td>Image upload</td>
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</table>

Image processing algorithms

- Computation of clinical variables
- Screening tools
- Generation of reports

Image processing modules

Arterio-Venous Ratio (AVR)

The ratio of the diameter of the retinal arteries to that of the retinal veins. It is usually around two-thirds. Deviations from this value may indicate a vascular disease (e.g., hypertension).

Only one click for
- Optic nerve detection
- Vessel width measurement
- Artery/Vein classification
- Selection of a suitable set of vessels
- AVR computation

Vessel edition enabled

Analysis of AVR changes through time in the same vessel points

US Patents 2012/0195481 and 2012/01955480

Microaneurysm turnover

Turnover rate is defined as the rate at which macular microaneurysms (MA) appear and then disappear. It predicts development of clinically significant macular edema (CSME) in eyes with non-proliferative diabetic retinopathy. Low MA turnover values identify well the eyes that are less likely to develop CSME in a 2-year period.

Sirius includes automatic procedures for
- Microaneurysm detection
- Image alignment and microaneurysm matching
- Turnover computation
- Analysis of microaneurysms in the macular area

Other features

- Optic disc location
- Fovea location
- Vessel tree segmentation
- Vessel tortuosity computation

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