

Implementation and development of methods and tools of calibration for book  
scanners  
Development of tools for image improvement

**Goals:**

The mission will take place as part of the digital book activity of the company. This activity aims at providing solutions for archives and libraries to digitize and exploits their funds. Image restoration applied to old books images is currently poorly treated topic in research and still remains an open problem. The quality of input images is a requirement of quality in the overall document processing. The job will be aimed at providing software tools to assist the calibration of scanners (measurement and correction of optics, mechanical and electronic distortions) but also to offer innovating means to improve the quality of images (calibrations, reduction of noise and correction of artifacts linked to the device). Also, the candidate shall also propose methods to create high resolution images from several low resolution images.

**Keywords:**

Calibration, measurement, signal processing, image processing, superresolution

**Company:**

*i2S* is an international group that is a recognized leader in the markets of digital vision, optronics and image processing. For more than thirty years, *i2S* has distinguished itself as a pioneer in extreme-condition digital vision and image processing solutions for customers requiring high image quality, ever-increasing camera performance and image processing systems that are increasingly intelligent and flexible. Thus, *i2S* is leader on the commercial and technological market of book scanners.

**Qualification required:**

- Master's degree in computer science or a related field such as electrical, telecommunications engineering, Mathematics or Physics
- Good programming skills in C++
- Good physic and applied mathematical understanding
- High motivation in research and technologies
- Good communication skills in English. French knowledge is welcome but not mandatory
- Proven knowledge and experience in computer vision and image/signal processing will be an asset

**Context:** This PhD position takes place in the context of a French CIFRE convention (Industrial Convention for Training through Research). The candidate will be attached to the *i2S* company and the University "Bordeaux 1". The candidate will be employed by the company during the whole duration of the thesis. Applications are open to all nationalities. The candidate must have received recently his certificate conferring his Master's degree.



**Location:**

*i2S*

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**Contact:** Feel free to contact Dr. Eric TRINH ([e.trinh@i2s.fr](mailto:e.trinh@i2s.fr)) for any related questions.

**Application:**

Applicants must submit a complete CV and motivation letter to: [e.trinh@i2s.fr](mailto:e.trinh@i2s.fr)