2018-00300 - [WIMMICS] Text auto-illustration for improving reading accessibility to low-vision people

**Contract type:** Internship agreement  
**Level of qualifications required:** A levels or equivalent  
**Function:** Internship Research

---

**About Inria**

Inria, the French National Institute for computer science and applied mathematics, promotes “scientific excellence for technology transfer and society”. Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. With its open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is the source of many innovations that add value and create jobs.

**About the research centre or Inria department**

The Inria Sophia Antipolis - Méditerranée center counts 37 research teams and 9 support departments. The center’s staff (about 600 people including 400 Inria employees) is composed of scientists of different nationalities (250 foreigners of 50 nationalities), engineers, technicians and administrators. 1/3 of the staff are civil servants, the others are contractual. The majority of the research teams at the center are located in Sophia Antipolis and Nice in the Alpes-Maritimes. Six teams are based in Montpellier and a team is hosted by the computer science department of the University of Bologna in Italy. The Center is a member of the University and Institution Community (ComUE) "Université Côte d’Azur (UCA)".

**Context**

**Background and objectives**

Low vision is a condition caused by eye disease which cannot be corrected or improved with regular eyeglasses. Retinal-degeneration disorders concern 285 million people in the world and it is predicted that prevalence of visual disabilities will increase markedly during the next 20 years. These disorders characterised by a progressive retinal degeneration not only in photoreceptors but also in the overall structure of the retina. So there is a real societal and scientific challenge to provide new solutions to help low vision people in their daily life activities. Among them, reading poses problems for almost everyone with low vision and it is amongst the strongest need reported by patients.

The BIOVISION team is currently working on a project to bring reading experience to a higher level of immersivity by providing a highly customizable visualization software running on phone-based virtual reality platforms. In this context, in collaboration with the WIMMICS team, we propose to explore text auto-illustration methods, consisting in automatically extracting image from the web which are related to the text, to make reading more efficient and enjoyable for low vision patients.

**Assignment**

During the internship, the successful candidate will be responsible for:
- investigating NLP methods to extract concepts and entities contained in some text and link them to online image contents.  
- once images are collected, he/she will apply image processing methods to create meaningful visual content from a selection of ranked images representing the entities found.

**Main activities**

- Hosting teams: BIOVISION (https://team.inria.fr/biovision/) and WIMMICS (http://wimmics.inria.fr/).  
- Internship grant: 1200€ / month (net salary).
Skills
The successful candidate will have the following profile:
- Msc or MA Student in Computer Science, or Computational Linguistics.
- Experience in Natural Language Processing, Artificial Intelligence and/or Machine Learning;
- Excellent programming skills;
- Strong interest in working in a multidisciplinary context made of computer scientists of different fields (NLP and image processing), and motivated my medical applications.

Benefits package
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities