

## HUMANITAS UNIVERSITY

### Selection procedure for 1 Type B Research Fellowship in Life Sciences in compliance with art. 22 of Law 240/2010

Humanitas University invites applications for 1 position as Research Fellow in Life Sciences.

Research Program Title	<b>“Studio CERTAIN: combinare l'utilizzo di Endo-Cuff e di sistemi di intelligenza artificiale in un trial randomizzato.”</b> Courtesy translation: “The CERTAIN study: Combining Endo-cuff in a Randomized Trial for Artificial Intelligence Navigation”.
Tutor	Prof. Alessandro REPICI
Scientific Area	06 - Medical Sciences
Gross amount of the fellowship	30.000 Euro
Duration of the fellowship	12 months
Objectives of the research	The Colonoscopy is clinically used as the gold standard for detection of colon cancer (CRC) and removal of adenomatous polyps. Despite the success of colonoscopy in reducing cancer-related deaths, there exists a disappointing level of adenomas missed at colonoscopy. “Back-to-back” colonoscopies have indicated significant miss rates of 27% for small adenomas (< 5 mm) and 6% for adenomas of more than 10 mm in diameter. Studies performing both CT colonography and colonoscopy estimate that the colonoscopy miss rate for polyps over 10 mm in size may be as high as 12%. The clinical importance of missed lesions should be emphasized because these lesions may ultimately progress to CRC. Limitations in human visual perception and other human biases such as fatigue, distraction, level of alertness during examination increases recognition errors and way of mitigating them may be the key to improve polyp detection and further reduction in mortality from CRC. Recent advances in artificial intelligence (AI), deep learning

	<p>(DL), and computer vision have permitted to develop several AI platforms which have already proved their efficacy in increasing adenoma detection during colonoscopy (Computer-aided detection -CADe- systems)). As a matter of fact, the improvement in detection due to AI systems is only related to the increased capacity of detecting lesions within the visual field, that is dependent on the amount of mucosa exposed by the endoscopist during the scope withdrawal. Increasing the mucosa exposure would theoretically be a complementary strategy to further improve polyps detection. A number of distal attachments have been tested to increase the mucosal exposure by flattening mucosal folds, including a transparent cap, cuff or rings.</p> <p>The aim of this study is to compare the additional diagnostic yield obtained by EndoCuff Vision aided-colonoscopy to the yield obtained by the Standard colonoscopy performed with the Artificial Intelligence -GI Genius- assistance in different colonoscopy settings.</p>
<p>Activities to be carried out</p>	<p>The Research Fellow will have to deal mainly with the following activities: data collection, data analysis, Paper drafting.</p>

The work place is in Pieve Emanuele - Milano.

A brief description of the project, activities to be carried out, mandatory requirements to take part into the selection process, information on the application procedure and on the selection criteria are presented in the following.

**RESEARCH PROJECT:**

The Colonoscopy is clinically used as the gold standard for detection of colon cancer (CRC) and removal of adenomatous polyps. Despite the success of colonoscopy in reducing cancer-related deaths, there exists a disappointing level of adenomas missed at colonoscopy. “Back-to-back” colonoscopies have indicated significant miss rates of 27% for small adenomas (< 5 mm) and 6% for adenomas of more than 10 mm in diameter. Studies performing both CT colonography and colonoscopy estimate that the colonoscopy miss rate for polyps over 10 mm in size may be as high as 12%. The clinical importance of missed lesions should be emphasized because these lesions may ultimately progress to CRC. Limitations in human visual perception and other human

biases such as fatigue, distraction, level of alertness during examination increases recognition errors and way of mitigating them may be the key to improve polyp detection and further reduction in mortality from CRC. Recent advances in artificial intelligence (AI), deep learning (DL), and computer vision have permitted to develop several AI platforms which have already proved their efficacy in increasing adenoma detection during colonoscopy (Computer-aided detection -CADe- systems)). As a matter of fact, the improvement in detection due to AI systems is only related to the increased capacity of detecting lesions within the visual field, that is dependent on the amount of mucosa exposed by the endoscopist during the scope withdrawal. Increasing the mucosa exposure would theoretically be a complementary strategy to further improve polyps detection. A number of distal attachments have been tested to increase the mucosal exposure by flattening mucosal folds, including a transparent cap, cuff or rings.

The aim of this study is to compare the additional diagnostic yield obtained by EndoCuff Vision aided-colonoscopy to the yield obtained by the Standard colonoscopy performed with the Artificial Intelligence -GI Genius- assistance in different colonoscopy settings.

#### **ACTIVITIES TO BE CARRIED OUT:**

The Research Fellow will have to deal mainly with the following activities: data collection, data analysis, Paper drafting.

#### **MANDATORY REQUIREMENTS:**

In order to be considered for the post candidates must hold a Master's Degree in Medicine and Surgery and a Specialization Diploma (Residency) in Gastroenterology / Digestive and Liver Diseases.

#### **SELECTION PROCESS:**

Application for admissions must be submitted at the following link:

<https://pica.cineca.it/humanitas>

No hard copy of the application must be sent by post.

At first access, applicants need to register by clicking on "Register" and completing the requested data.

If applicants already have LOGINMIUR credentials, they do not need to register again. They must access with their LOGINMIUR username and password in the relevant field LOGINMIUR.

Applicants must enter all data necessary to produce the application and attach the required documents in PDF format.

#### **SELECTION CRITERIA:**

Selection criteria are predetermined by the Selection Committee. As part of the selection process, the Committee will evaluate the curriculum, titles and publications presented by the candidate and will consider, in particular:

- adequate and consistent scientific production (scientific papers published in international impacted journals, preferably in the field of Digestive Endoscopy and / or Artificial Intelligence and / or the diagnosis and treatment of colic lesions);
- consistent scientific-professional curriculum: experience in the last 2 years in diagnostic and operative digestive endoscopy;
- good knowledge of the English language.

#### **FURTHER INFORMATION:**

For more details on the selection process please refer to the **Rectorate Decree n. 179/2020** (<http://www.hunimed.eu/it/lavora-con-noi/>) or send an inquiry to [ufficiodocenti@hunimed.eu](mailto:ufficiodocenti@hunimed.eu) or telephone +39 02.8224.5642/5421.