

CALL FOR STUDENTS NOMINATIONS

FALL 2023

Research Internship Program in Engineering and Sciences at the School of Engineering and Architecture, Fribourg of the University of Applied Sciences of Western Switzerland

With the aim of offering high-performing students at Tec de Monterrey a multicultural environment that contributes to their global perspective, academic, research and personal development in institutions of recognized international prestige, the Vice-Rector's Office for Internationalization, in collaboration with the School of Engineering and Sciences of Tec de Monterrey and the i-Print Research Center of the School of Engineering and Architecture of the University of Applied Sciences of Western Switzerland, Campus Fribourg, invites undergraduate students to carry out research internships during the Fall semester (August-December) of 2023.

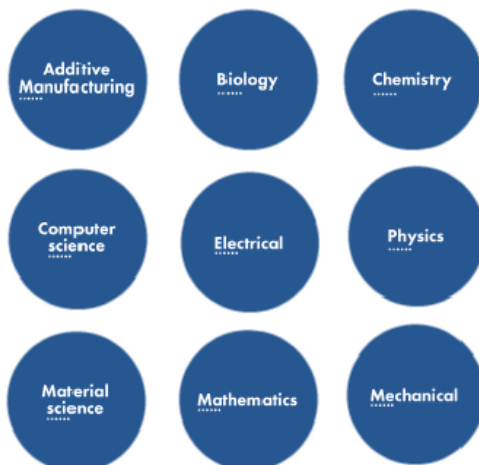
All applicants must have and demonstrated:

- Completed at least 5 semesters at TEC by the time of the application
- A minimum general average of 90
- Proof of English language proficiency from the minimum: TOEFL ITP 550, TOEFL iBT 80, IELTS 6.0, Cambridge B2 (current or expired).
- Participation and experience in research projects
- Highly motivated, able to work independently, well organized and a good team player.
- Passionate about tackling grand challenges

Starting dates and deadlines for receipt of applications for Fall 2023:

- *Opening date: January 23d*
- *Information Sessions: January 30 to February 3d.*
- *Closing deadline: March 8*

THE i-Print RESEARCH CENTER



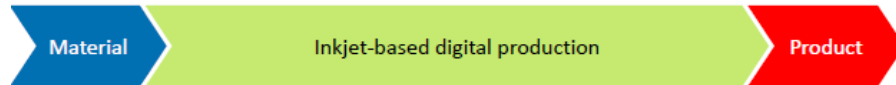
- Multidisciplinary Institute and Competence center for Inkjet technology
- Established in 2013
- Is part of the School of Engineering and Architecture, Campus Fribourg of the University of Applied Sciences of Western Switzerland.
- 7 professors, 4 administrative staff, 30 scientific staff, 2 technicians
- 1'500 m2 space 24 labs with multiple home-built research printers

Education

Educate specialists in inkjet-related core competences with a highly interdisciplinary understanding

Innovative technologies

Develop new technologies enabling the revolution in tomorrow's digital production



Applied research

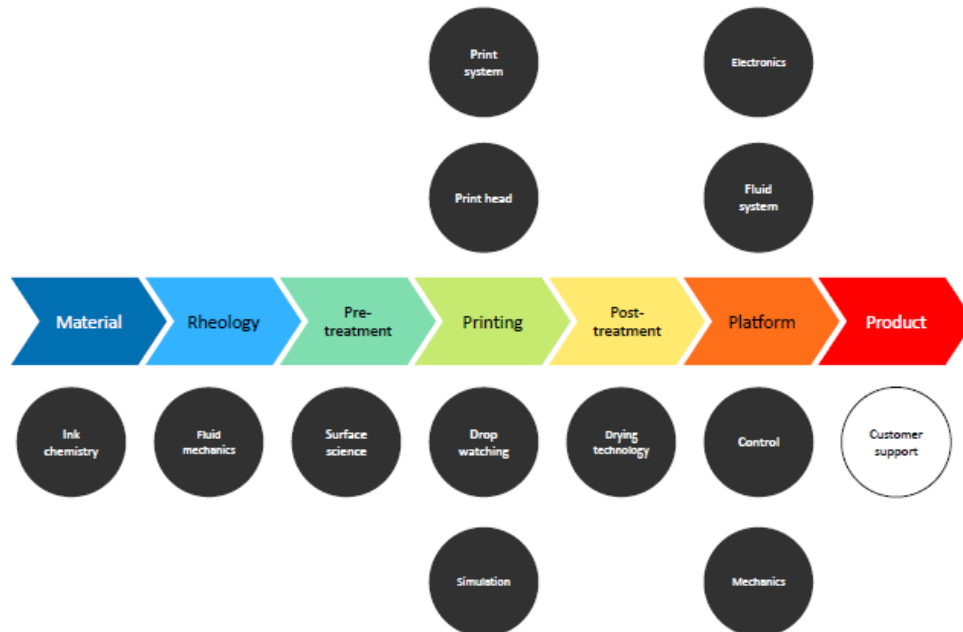
Develop and optimize inkjet-based digital printing processes

Technology transfer

Foster the technology transfer for digital printing processes

THE OBJECTIVES OF THE i-Print RESEARCH CENTER

THE CORE COMPETENCES OF THE i-Print RESEARCH CENTER



Project 1) Skin-interfaced inkjet-printed sensor design

No. spots: 1

Candidate Profile: Major in Electrical/Electronic Engineering or Physics (Those students who qualified for the project vacancy, despite the study program at TEC, are encouraged to apply if they can demonstrate skills and knowledge required at the project description)

i-Print Supervisor: Dr. Lorenzo Pirrami

PROJECT SUMMARY

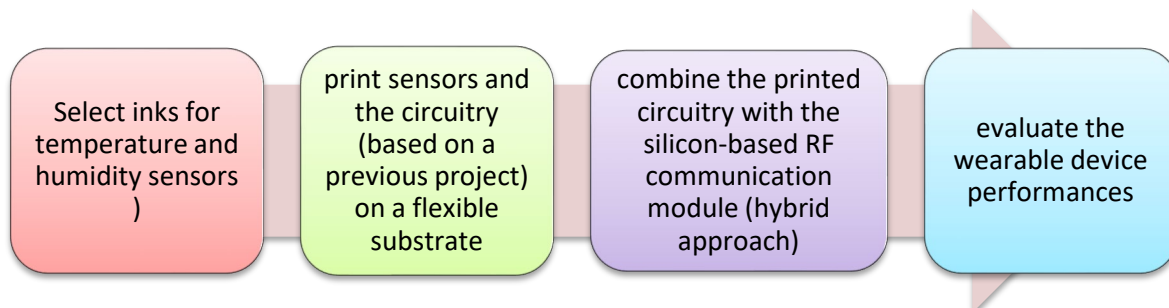
Abstract:

Wearable technologies and wireless body sensor networks for healthcare are gaining increasing popularity. The constant monitoring of body vital and other important metrics enables digitized accurate monitoring of one's health. It is especially interesting to detect premature signs of any potentially fatal illness. Therefore, the design and fabrication of low-cost wearable monitoring systems is of outmost importance.

Inkjet printing is well suited for sensors fabrication since it allows printing conductive, insulating, and semi-conductor materials. However, in terms of full integration with communication systems, silicon-based electronics are absolute necessities since printed electronics cannot perform at high speeds and high performances. Therefore, the ideal design for a wearable health monitoring device would take a hybrid approach where advanced flexible materials (e.g., conductive, and dielectric inks) are integrated in conjunction with flexible silicon-based ICs or flexible PCBs.

Objective: Development of Inkjet print sensors for digital medicine applications

Activity Workplan:



Project 2) Air-flow effects on inkjet droplets trajectories

No. spots: 1

Candidate Profile: Major in Mechanical Engineering or Physics (Those students who qualified for the project vacancy, despite the study program at TEC, are encouraged to apply if they can demonstrate skills and knowledge required at the project description)

i-Print Supervisor: Dr. Gioele

PROJECT SUMMARY

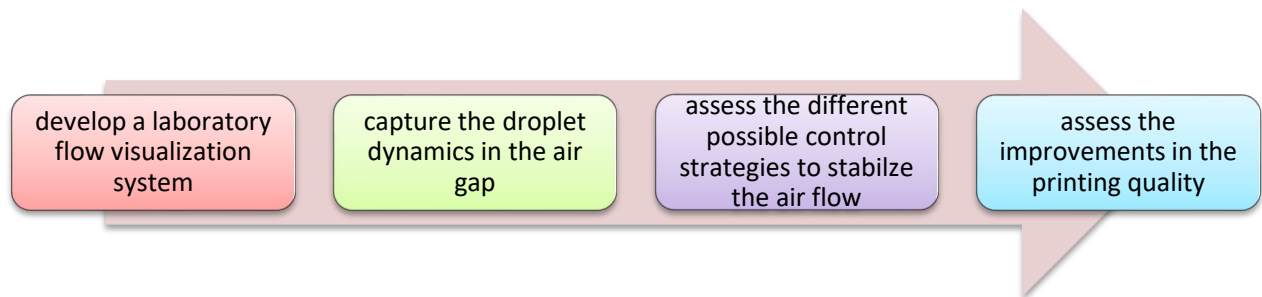
Abstract:

Driven by the digital revolution and the demand for personalized products, inkjet printing has evolved from being mainly used for graphical applications to a digital fabrication toolkit. Nowadays, functional ink drops are deposited on substrates of increasingly complex geometries and at higher productivities.

Due to the necessary larger gap between the inkjet print head and the printed media to avoid collisions, as well as the higher printing speeds, aerodynamic effects perturb the trajectory of ink droplets and dramatically compromise the print quality. Unstable vortices form in the larger printing gap and deviate the trajectories of droplets.

Objective: The aim of this project is to experimentally study the air flow around the print head and to develop air-flow control strategies to improve the printing quality.

Activity Workplan



DOCUMENTATION and GENERAL GUIDELINES

Documentation to submit:

- A copy of your CV (free format)
- A motivation letter (maximum of 1 page) in English.
- Letter of recommendation in English from one researcher at Tec de Monterrey probing the student skills for the project.
- Transcript (FAM in English)
- Proof of English language proficiency from the minimum: TOEFL ITP 550, TOEFL iBT 80, IELTS 6.0, Cambridge B2 (current or expired)
- Copy of valid passport (minimum 6 months after coming back from Switzerland)

Some recommendations when writing motivation letters and CV:

- Be very specific in both CV and motivation letters on how they can prove they have the skills and abilities required.
- Include evidence of teamwork skills, leadership, and proactivity (i.e., participation in student groups, social activities, representative teams, entrepreneurial activities, outstanding work done as a team leading the respective team, etc.)

General guidelines:

- Have a VALID national passport at the time of submitting the application to this call and with sufficient validity to remain in Switzerland if selected (minimum 6 months after coming back from Switzerland).
- Students must have sufficient funds and appropriate Medical Insurance as per HEIA Fribourg guidelines to support themselves in Switzerland during their internship.
- Students will cover the costs related to the visa application as well as all personal expenditures to come and live in Switzerland.
- It is the candidate's responsibility to carefully read the information on the research projects as well as additional information on the center or laboratory and scientist associated with the research project of interest.
- Once students are selected and confirmed by TEC and HEIA Fribourg, it is their sole responsibility to continue with the VISA application.
- All positions announced at this call are not remunerated. Students are encouraged to apply to national and international scholarships.

Before sending applications, please the practical information for international students found in the following site: <https://www.hes-so.ch/en/la-hes-so/enseignement/etudier-a-la-hes-so/venir-a-la-hes-so/informations-pratiques>. Here students can also find information that will help them estimate living costs and make their budget before arrival.

HOW TO APPLY

1) The student must update his/her profile at:

Mi Tec -> Mi Experiencia Internacional -> Estudiante Interesado -> Actualiza tu Perfil

2) The student must send his/her application by **March 08, 2023**, including the program key **SUI-5EI-004A** at:

Mi Tec -> Mi Experiencia Internacional -> Estudiante Solicitante -> Realiza tu solicitud

- 3) Shortly after the application is sent, the application status will be updated, and the student must accept the preselection. It is particularly important to keep in mind that this is NOT the result. The candidate selection depends on the decision of a selection committee, and it will be communicated by the International Programs Office.
- 4) Next, the student will have access to the Document Submission and must upload the required documents by **March 08, 2023**.

HOW AND WHERE TO SUBMIT THE DOCUMENTS

Students can apply to different internships in the same call. However, remember to modify your motivation letter, CV, and recommendation letter.

Documents must be digitized in 1 single PDF file named with the prospective student ID # and last name of I-Print Research Professor of the project to be applied for. ***Applications will not be received if the documents come in multiple files.***

Enter info and requested documentation in the following link:

<https://form.jotform.com/222121508098855>

Without exception, applications will not be accepted after the deadline. Candidates with incomplete documentation will be automatically rejected. Please, be sure you enclose all documents before submitting. Students might also be contacted and offered a different project, according to each profile and skills. We thank all students for their participation. We will only communicate with those who are preselected for an interview.

Deadline: March 08, 2023

SELECTION PROCESS

An evaluation of each applicant is done by Tec de Monterrey under this calendar:

a) International Office of Monterrey Campus reviews documentation of all candidate's	March 8 to 13
b) Notification of Preselected Candidates to Swiss International Liaison Office	March 14
c) Preselected candidates will be contacted by Swiss International Liaison Office to arrange date and time for an interview with i-print researcher.	March 17 to April 13
d) Email by Swiss International Liaison Office confirming final candidates selected by i-print researchers.	April 14

After final interviews, we will announce the final resolution and students will have a couple of days to accept or reject the offer. Once accepted, students will have further instructions to move forward with the VISA application.

The committee's decision is always final.

SOME CONSIDERATIONS TO KEEP IN MIND FOR SELECTED STUDENTS

- The starting and finishing day will be agreed in individual cases by the student and the i-Print researcher.
- **Official Fall term is August - December.** Students need to complete at least 16 weeks of research internship. Students are welcome to arrive a few weeks before the internship starts.
- Be fully aware that, as a selected student, you are part of the image of the institution, so in addition to complying with the norms and standards of HEIA Fribourg, you remain under the code, rules, values, and the General Regulation of Students at Tec de Monterrey when being abroad.
- The selected students are encouraged to be proactive and committed with their learning process, dedication, and contribution during their research internship. Occasionally, students might be asked to read some bibliography and dedicate some hours to the project before arrival, so they are better prepared.
- The work schedule will be defined for both the student and i-Print researcher before the student arrives in Switzerland. There will be a TEC Researcher closely involved in the project or internship.
- Students must sign a confidentiality agreement at the i-Print Research Center, depending on the nature of the project and agreed terms by the professors.
- Research internships are unpaid. Students need to demonstrate sufficient funds to apply for an internship or student visa. Notice that this is a full-time internship from Monday to Friday.
- This call does not include funding for accommodation, food, or any personal expenditures either from TEC or HEIA Fribourg.
- Visa process will take about 4 months. Students should cover their visa process cost. You can visit the site:
<https://www.fr.ch/vie-quotidienne/demarches-et-documents/etrangers>
for further information about immigration requirements.

REGISTRATION AND ACCREDITATION OF COURSES

The program has a minimum duration of 18 weeks, students will be enrolled at Tec de Monterrey in the academic period August - December 2023.

Students of academic plan: Prior to 2019

The number of units to be accredited will be defined by the Academic Coordinator prior to the student's participation. The number of units to be enrolled and credited in each semester is:

Minimum: 8 units

Maximum: 32 units

Students of academic plan: Tec 21

The student will enroll 18 credits per semester and validate the accreditation in the study plan with the Academic Coordinator.

The courses to be revalidated from the student's study plan will be defined by the Academic Coordinator and informed to the International Programs Office of the student's campus.

Once accepted, students must complete their course registration for each period in the International Programs platform.

It is student's responsibility to validate with the Academic Coordinator the availability of the subjects to be revalidated by a project in which they participate. Otherwise, the subjects could be left as off-plan subjects.

Students will have assigned a Tec professor who will evaluate and define the student final scores of the research abroad experience, considering the following [policy](#).

TUITION

The tuition to be paid will be directly at the corresponding Tec de Monterrey campus. Payment will be made according to the number of credits/units registered in August – December 2023.

ADDITIONAL INFORMATION

Any point not covered in this call will be resolved by the selection committee in conjunction with the competent authority of Tec de Monterrey as the case may be. Any problem or doubt regarding the application stage should be communicated in a timely manner by sending an email or attending to the [International Programs Office at the corresponding campus](#).