

INTERNSHIP - Optics - Closed-loop characterization and control of ultrafast tip/tilt platforms

Montbonnot-Saint-Martin, France - Internship (5 month)

About Bertin Alpao

BERTIN ALPAO, a subsidiary of the **BERTIN TECHNOLOGIES** group, is a high-tech company renowned for its innovation and expertise in adaptive optics (AO).

A world leader in this field, we design and produce a wide range of **deformable mirrors** (DM), wavefront sensors (WFS) and customized systems, specially designed for demanding applications such as space, astronomy, optical and quantum communications, ophthalmology, microscopy, microelectronics and laser applications. Thanks to our **unique technology**, we enable our users to correct optical aberrations in real time, thus obtaining very high-resolution images.

Over 90% exported, Bertin Alpao takes on multidisciplinary technological and scientific challenges in the service of international research projects. In particular, we have developed deformable mirrors for the world's largest telescope, and collaborated with the Nobel Prize-winning physics team Reinhard GENZEL and Andrea GHEZ, equipping a key instrument used for research into the Milky Way's supermassive black hole.

Our partners include prestigious players in the fields of research, such as **ESO** (European Space Observatory), **NASA** and **CNES**, and industry, such as Airbus, Thales and Safran...

Located in "Inovallée" in Montbonnot Saint-martin (38), in the heart of Europe's "Silicon Valley", we offer our 50 employees a unique working environment at the foot of the Alps.

Visit our [Bertin Technologies - Bertin Alpao](#) website and subscribe to our LinkedIn page to follow our news!

Job description

Do you enjoy challenges? Are you curious and keen to undertake an internship that will help you develop and put your academic skills into practice? Would you like to join an innovative and agile company and contribute to its sustained growth?

To help us achieve our performance goals, we are continuing to pursue our ambitions and strengthening our teams at our subsidiary Bertin Alpao. **So join us as part of our internship topic** entitled: **Closed-loop characterization and control of ultrafast tip/tilt platforms for atmospheric turbulence correction in adaptive optics.**

As Bertin Alpao's market share in FSO application increases, we aim to strengthen **our ability to design complex optical systems** that meet the specific needs of our clients. In this context, qualifying key components such as fast Tip/Tilt mirror platforms (TTM) is a crucial step in the design of our advanced optical systems.

The goal of this internship is to measure and validate the performance of components offered by our TTM platform suppliers.

Your main Tasks will consist in Design and assembly of an optical test bench dedicated to the characterization of Tip/Tilt platforms :

- Redaction of a test plan for dynamic performance characterization
- Measurement of the transfer function and bandwidth of the selected products
- Comparison between experimental results and theoretical models
- Writing of a technical report summarizing results and recommendations.

Profile

You are an engineering or Master student (4th year), specializing in optics, instrumentation, or applied physics.

Your academic backgrounds has enabled you to develop knowledge and skills in the following technical areas :

- Knowledge in optics, signal processing, and instrumentation
- Scientific rigor, autonomy, and analytical mindset
- Prior experience in laboratory work, optical bench assembly, or control theory would be a plus.

Are you known for your adaptability, rigor, and team spirit?

Do you enjoy working independently and in an organized manner in a challenging environment?

Finally, do you share our core values of courage, confidence, talent, and team spirit?

Then don't hesitate to apply!

What we can offer you

Opportunities for employment and career development, the chance to discover different fields, and the opportunity to propose ideas (contractual bonuses for filing patents).

A rich and constantly evolving environment, a community of passionate people working in a culture of information sharing.

94% of our interns and work-study students recommend Bertin and appreciate the diversity and quality of the tasks they are given on a daily basis (HappyTrainees 2025 survey).

We place particular importance on our interns, providing them with the best possible support in their training and involving them in ambitious projects.

Whatever your profile and career goals, discover the diversity of our professions and unleash your potential with us!

You will receive a monthly internship bonus.

Just like our employees, you will also receive meal vouchers and a 50% reimbursement of your public transportation costs.

Then don't hesitate and apply to us by sending your CV along with a cover letter highlighting your experience and interest in the position to recrutement@bertin.group.