

Job opening:

Optical Design Lead

Wyvern is making something big. Our vision is to provide actionable intelligence from space, anywhere in the solar system. To achieve this we need to entirely reimagine how satellite Earth observation is done.

We're a rapidly growing space company in Western Canada, powered by humans who are passionate about space and are redesigning the satellite to enable a sustainable future for humanity. Wyvern has just finished Y Combinator's Winter 2022 batch and has acquired >\$9M in pre-seed, seed, and grant funding. If you're excited by the prospect of creating a step increase in the capability of space-based cameras, we want you on our team.

What we're workin' on

Wyvern is developing unfolding space telescopes to capture high-resolution hyperspectral imagery from space.

Hyperspectral images contain more colors than other types of imagery, meaning these images capture the spectral signature of your crop or forest, for example. With hyperspectral imagery, however, it's hard to get quality images with a high signal-to-noise ratio and high resolution. To mitigate this, we're designing telescopes that are compact on launch and deploy in space, meaning we pack better performance in a smaller, cheaper-to-launch package. Our increased light collecting area will allow for more light in more bands while maintaining <5 m resolution.

We're looking for an experienced Optical Design Lead to optimize our deployable optics telescope, and other imaging systems, for performance and manufacturability as we transition from a prototype on the lab bench to a system that is ready for space.

Who you are

- You can explain technical concepts about your work to non-technical people and keep them engaged as you explain.
- You are able to independently solve engineering problems and have a solid critical thinking process.
- You have demonstrated the ability to work in a team environment with engineers, scientists, and support staff from multiple disciplines.
- You have experience with various optical design aspects such as geometric & diffractive optics, radiometry, detector performance, and stray light analysis.
 - Experience with hyperspectral systems extending into the SWIR region is an asset
- You have an understanding of optical test methods.
- You are familiar with optical design software (preferably, Zemax OpticStudio) and can accurately model and analyze optical system performance.

- Experience with optical imaging systems is desirable, including:
 - Experience designing and evaluating imaging systems,
 - Knowledge of key image quality metrics (SNR, MTF, etc.) and spectral performance metrics (coregistration, keystone, smile, etc.),
 - Knowledge of remote sensing mission design parameters (ground sampling distance, swath, etc.),
 - Experience aligning and evaluating imaging systems during assembly, integration, and test.
- You can quickly analyze, incorporate and apply new information and concepts into new or existing designs.
- You have knowledge of the systems development life cycle and have a good grasp on all system elements required in order to build a functioning optical device (e.g. optical, mechanical, electrical, and software elements, as well as how they interact).
 - Knowledge of the constraints of the space environment on optical design and performance is an asset.
- You are fluent in basic mathematical or system modeling tools (preferably MATLAB or python).
- You consider yourself an optics nerd and strive to be on top of the latest research.
- You must have a Bachelor's degree in optical engineering, optics, physics, applied science, or equivalent.
 - An ideal candidate may have a graduate degree in optical engineering, optics, physics, applied science, or equivalent.
- You must have 4+ years of experience in a role similar to that described above.

What you will be doing

You will:

- Work with our Research & Development team (hybrid, in Edmonton; team of 6),
- Apply creativity and a solid knowledge of optics and optical engineering to develop new solutions,
- Conduct trade studies on imaging telescope designs, evaluating the merits and risks of alternative design concepts,
- Develop optical system requirements,
- Use Zemax OpticStudio to develop detailed optical system designs,
- Identify and recommend optimum design solutions for the engineering and space-ready models of our deployable optics telescope, and others,
- Evaluate performance of various optical models against imaging performance requirements,
- Perform optical tolerancing analyses,
- Lead design reviews,
- Support a structural, thermal, and optical performance (STOP) analysis workflow with imaging performance evaluation, in concert with our mechanical engineering team,
- Design assembly, integration, and test plans for the telescope, and support procurement of equipment,



- Support assembly, integration, and testing of telescopes,
- Supervise engineering and science interns and co-op students,
- Contribute to our IP strategy and support basic research activities (paper writing, attending conferences),
- and likely more! As part of a small startup team you'll find yourself working across the board to support Wyvern's activities.

What to expect from Wyvern

- We have all the best aspects of startup culture including flexible working hours & support from across the team whenever you need it.
- We give ample vacation time and a stellar health benefits package.
- We're small but rapidly growing. The systems you craft will be foundational to Wyvern's success and you will get the unique opportunity to grow *with* the company.
- This is a full-time, permanent position based in Edmonton, Alberta, Canada. Remote work is an option for exceptional candidates with remote work experience.

To apply for this opening, send your resume & cover letter to **hiring@wyvern.space**.