



## **COMPANY**

Tunoptix is a fast-growing startup focused on revolutionizing the way optical systems are conceptualized, designed, and manufactured using nanotechnology and semiconductor processing. We combine semiconductor-defined meta-optics with advanced, AI-based image processing and proprietary design techniques to enable next-generation cameras. Tunoptix products will expand possibilities in the fields of machine vision, consumer electronics, medical endoscopy, 3D imaging, and hyperspectral imaging.

Tunoptix is an emerging leader in meta-optics and computational imaging and was founded to commercialize disruptive meta-optical technologies developed in the research groups of professors Arka Majumdar and Karl Bohringer at the University of Washington. We have raised venture funding from IP Group as well as from major government funding organizations including DARPA and NASA. Tunoptix is also a member of the vibrant startup community at the University of Washington CoMotion Fluke Labs incubator.

[Tunoptix Website](#)

## **POSITION – Computational Optics Scientist**

Reporting to the Director of Optical Design, the Computational Optics Scientist will collaborate with a talented team of engineers and scientists to develop cutting-edge Tunoptix systems. Specifically, this includes developing meta-optical design software and optimization methods, implementing new design features, and simulation and validation of high-performance meta-optical components for future Tunoptix products. This is an exciting opportunity for a highly motivated and capable engineer to gain expertise in the growing field of meta-optics and computational imaging systems. Together, we can shape next-generation imaging systems for industrial machine vision, medical instrumentation, automobiles, robotics, and consumer electronics.

**LOCATION:** Seattle, WA

## **RESPONSIBILITIES**

- Work closely with the rest of the technical team to design meta-optical components and architectures for Tunoptix systems and products
- Develop and test rigorous, multi-scale physics models and simulation methods for meta-optical systems and cameras
- Implement and test new design features, extensions, and optimization techniques, including using adjoint-based methods, automatic differentiation, and stochastic methods
- Perform optimizations, design validation, and data analyses using Tunoptix's proprietary computational framework, as well as with commercial software (e.g., Zemax/Code V, Lumerical)
- Write unit tests for developed software and conduct code and design reviews
- Document designs and software and develop SOPs for new tools
- Utilize and maintain the necessary compute infrastructure on AWS for supporting meta-optical design work



## QUALIFICATIONS

- PhD in physics, engineering field, or equivalent discipline with a heavy emphasis on optics
- Strong understanding of ray optics, diffraction, and optical systems (imaging and non-imaging)
- Deep understanding of Fourier optics and associated computational/simulation methods
- Extensive experience conducting full-wave electromagnetic simulations (e.g., FDTD, RCWA) with an intimate understanding of their implementation
- Experience with Zemax/Code V for imaging and non-imaging optical design, including advanced functionalities/analyses, tolerancing, merit function design, and the ZOS-API
- Understanding of gradient-based optimization methods and their implementation
- Experience with automatic differentiation frameworks and backpropagation (TensorFlow preferred)
- Significant experience with Python and key packages (e.g., scipy, matplotlib, scikit-image, etc.)
- Competent with at least one compiled, object-oriented language (e.g., C++ or C#)
- Software background and experience with unit testing and version control
- Experience with Docker, AWS, and working with high-performance compute systems, including GPU-accelerated platforms
- Strong interpersonal and technical communication skills
- Ability to bridge technology development with commercial demands
- Familiar with the startup or early-stage business environment
- Entrepreneurial spirit, with a hands-on, roll-up-the-sleeves mentality

## WHAT WE OFFER

- Competitive Compensation Package, including equity
- Full benefit package: Medical, Dental, and Vision Plans
- Insurance: Company paid Life and Disability insurance
- Medical savings accounts: FSA and HSA accounts
- Paid time off: Vacation and sick time

## COVID-19 PRECAUTIONS

- Remote interview process
- Personal protective equipment required
- Social distancing guidelines in place
- Virtual meetings

## EEO Statement

Tunoptix is proud to be an Equal Employment Opportunity and Affirmative Action employer. We do not discriminate based upon race, religion, color, national origin, gender (including pregnancy,



childbirth, or related medical conditions), sexual orientation, gender identity, gender expression, age, status as a protected veteran, status as an individual with a disability, or other applicable legally protected characteristics.

**APPLY**

If you are interested in the role, please send your resume to [shanec@tunoptix.com](mailto:shanec@tunoptix.com)