



Senior Silicon Photonics Engineer

Job Specification

About Optalysys

Optalysys is a pioneering global deep-tech company developing programmable silicon photonic Compute-in-Transit technology that enables operations to be performed directly within the data path, reducing movement overhead and creating new compute capability for data movement-bound infrastructure. Our work supports breakthroughs in areas such as artificial intelligence, cybersecurity and scientific discovery.

At Optalysys we take on the hardest challenges to enable a future of limitless compute

A future where intelligence and light unlock what conventional computing cannot, accelerating discovery and expanding the possibilities of what computing can bring to all of us.

We're bringing together talented people who are passionate about building technology that expands what computing – and humanity – can achieve

We are committed to building a home for exceptional talent.



About the Role

Role: Senior Silicon Photonics Engineer

Department: Engineering

Location: Leeds, UK (Onsite)

Employment Type: Permanent, Full-Time

Level: IC3

The Senior Silicon Photonics Engineer will lead the wavelength division multiplexing architecture for a multi-wavelength, high-speed photonic interconnect and compute platform.

You will define and optimise the wavelength architecture, compare AWG and resonant selection approaches, and deliver foundry-ready designs, layouts and test structures. The role will translate system-level link requirements into a scalable channel plan and work closely with device, PIC, analogue front-end, layout and packaging engineers through design, tapeout and validation.

This is a hands-on technical role requiring strong experience in silicon photonics, WDM architecture and photonic integrated circuit design.

Key Responsibilities

Wavelength division multiplexing

- Define architecture, wavelength plan, channel spacing, power budget and performance targets for the photonic link

Design, simulation and modelling

- Run electromagnetic and circuit level simulations across process, wavelength and temperature corners
 - Design and modify micro-ring modulators and filters to meet WDM specifications
 - Develop AWG architectures that meet channel count, spacing, insertion loss, crosstalk and footprint targets
 - Compare AWG and micro-ring modulator-based wavelength selection against system power, yield and control complexity
 - Model end to end optical links, including loss, crosstalk, dispersion, thermal drift and manufacturing variation
 - Design test structures and measurement plans for spectral response, loss, uniformity and thermal sensitivity
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Photonics integrated circuit design

- Specify and integrate modulators, detectors, multiplexers, monitors and thermal control structures within the PIC
- Work with PIC layout engineers to minimise losses, waveguide routing and density around the AWG
- Plan optical characterisation and analyse first silicon against system requirements

Foundry relationship

- Own design reviews, corner analysis, design rule compliance and foundry signoff for WDM functions
- Support foundry interactions, design reviews, tapeout signoff and silicon debug
- Perform OPC simulations and design refinement

Design collaboration

- Maintain clear interface specifications for analogue front end, control logic, packaging and test teams

Personal skills and attitude

- Strong analytical and problem-solving skills, with the ability to think beyond conventional approaches.
- Embrace changes and challenges
- Adaptable to agile operations and start-up culture

Required Experience & Skills

- MSc or PhD in photonics, electronic engineering, physics or a related discipline.
 - Experience in silicon photonics or integrated optics design experience, including successful tapeouts.
 - Strong knowledge of WDM link design, resonant devices, process variation and thermal tuning.
 - Experience with photonic circuit simulation, foundry PDKs and layout verification flows.
 - Ability to turn system level requirements into device and PIC specifications.
 - Hands on experience designing and characterising AWGs, echelle gratings or comparable multiplexers.
 - Understanding of fabrication tolerances, thermal behaviour and statistical yield analysis.
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Preferred / Additional Experience

- Experience with CW WDM architectures and high-speed optical links
- Familiarity with CW-WDM MSA specifications
- Experience with dense CW WDM links and monolithic electronic photonic integration
- Familiarity with co-designed CMOS drivers, TIAs and calibration loops
- Knowledge of compact models and circuit simulation for large PICs
- Experience correlating simulation with wafer level optical measurements
- Python or MATLAB skills for modelling and measurement analysis
- Experience with Lumerical, Cadence EDA flow

Benefits

We offer competitive compensation. The base salary range for this role is determined based on location, experience, educational background, and market data.

Salary Range: total compensation goes beyond base salary; it also includes comprehensive health care plan, employer contributed pension plan, generous time off, annual performance-based bonus, and other rewards that recognise your impact and contribution.

Benefits eligibility may vary depending on your employment status and location. Optalysys recruits, employs, trains, compensates, and promotes regardless of race, religion, color, national origin, sex, disability, age, veteran status, and other protected status as required by applicable law.

How to apply

Please send a copy of your CV to recruitment@optalysys.com with a cover letter
