



Compiler Engineer

Job Specification

About Optalysys

Optalysys is a pioneering deep-tech company developing new ways to power the future of computing. By harnessing light, we are creating advanced photonic technologies that help the world's most demanding systems run faster and more efficiently. Our work supports breakthroughs in areas such as artificial intelligence and computing infrastructure. At Optalysys, 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: Compiler Engineer

Department: Architecture

Location: UK - Remote, with willingness to travel to any UK or US Optalysys hubs

Employment Type: Permanent, Full-Time

Level: Senior / Principal

The role is within Optalysys' newly formed Architecture group which is tasked with architecting a novel photonics computing system for various target markets, such as AI and Fully Homomorphic Encryption (FHE).

You will play a key role in bridging real-world applications, and novel hardware, ensuring that the system delivers meaningful value for target use cases.

This is a highly cross-disciplinary role combining application development, system architecture, and advanced workloads

Key Responsibilities

You will be responsible for the delivery of compiler tooling for this system. The major tasks will be:

- Lead the specification and development of compiler technology targeting photonics based compute system
- Ensure the compiler flow integrates with the other tools, such as in-house system simulation framework
- Ensure the compiler flow integrates with application libraries seamlessly
- Ensure appropriate debug information is available to enable debugging of the system
- Specify and develop Optalysys specific optimization techniques
- Documenting and writing code to help with pre-tapeout verification
- Mentoring less experienced engineers
- Helping in system bring-up
- Defining and requirements capture for mission mode software
- Defining, tracking and reporting engineering metrics to demonstrate progress towards completion
- On time delivery of the design against agreed metrics and sign-off



Required Experience & Skills

You will have a strong background in C/C++ and Python. You will need to be collaborative, an excellent communicator and able to work in a fast-changing environment. You will have:

- 10+ years in industry
- Experience in C/C++
- Experience in Python
- Knowledge of the internals of a compiler
- Experience with MLIR and LLVM
- Experience of compiler optimisation strategies
- Knowledge of SoC architectures and memory architectures
- Knowledge of Rust
- Experience in using various testing frameworks
- Experience in writing specifications, test plans and reports
- The ability to communicate clearly with both expert and non-expert audiences

Preferred / Additional Experience

- Familiar with AI/ML frameworks such as PyTorch or ONNX Runtime
- Familiar with Cryptography frameworks such as HEIR or Concrete
- Knowledge of using JIRA
- Knowledge of performance analysis
- Familiar with MLIR Dialects
- Knowledge 2 or more ISAs
- Knowledge of Python based CI
- Knowledge of GIT and pipelines

Benefits

We offer competitive compensation. The base salary range for this role 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, Pension matching program, 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