

*Wherever safety and Security are Critical, Thales delivers. Together, we innovate with our customers to build smarter solutions. Everywhere.*

Established in 1972, **Thales** is a global technology leader for the Defence & Security, Aerospace and Transport markets. World-class technology, the combined expertise of 62,000 employees and operations in 56 countries have made Thales a key player in keeping the public safe and secure, guarding vital infrastructure and protecting the national security interests of countries around the globe.

**Thales in Canada** has 1,800 employees in Quebec City, Montreal, Ottawa, Toronto and Vancouver working in Defence, Avionics and Transportation markets. Thales in Canada is a 500 million (CAD) a year business, with a range of customers including Canadian and overseas urban rail operators, civil aviation, and defence and security agencies.

**Position Title:** Intermediate Specialist – Research & Technology  
**Location:** Toronto (Don Mills/York Mills)

### Job Purpose:

As a research and technology (R&T) Specialist you bring your expertise in robotics, computer vision, fusion algorithms, point cloud processing and machine learning to develop, build, test and evaluate next generation solutions for the transit market. You will be involved in research and development to create “proof-of-concept” products for the urban rail signaling domain.

- To participate in the analysis of very complex, real-time, autonomous system use cases
- To understand the goal of a research project and support its execution
- To perform analysis of lab and field test results
- To document and defend results, designs and tradeoffs
- To work with multiple sensors and the latest software algorithms to control complex, safety critical systems
- To develop expertise in railway signaling and learn the product offering of Thales
- To become a highly productive team member and team player

### Key Job Functions:

- Support inputs for overall design solution to product definition including system architecture, failure mode analysis and system redundancy for R&T projects;

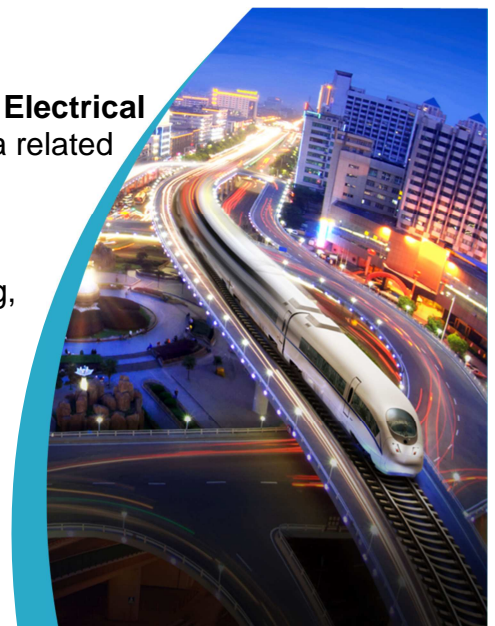


- Contribute to the overall architecture design of the next generation automated train solution;
- Develop, analyze, implement algorithms for train applications:
- Use the latest algorithms for object detection, fusion, machine vision, deep learning and adaptive control systems, and filters;
- Perform prototyping in simulation environments and with “proof of concept” platforms;
- Perform modelling using tools such as Matlab;
- Perform hands on experimentation to gain new knowledge;
- Perform all phases as related to algorithm development: model, compile, build, debug, simulation, testing, validation and documentation;
- Design, code, integrate and test software applications required to support various R&T projects;
- Design and build prototype hardware;
- Use and setup tools and systems for data collection and evaluation of large datasets. Experience with ‘big data’ algorithms is an asset;
- Analyze control system dynamics, parameters and models to generate reports.
- Prepares reports, giving findings on problems;
- Provides support to product team and other departments as required to help with productization of new solutions;
- Analyzes and write requirements using Company standard methodology;
- Works with system modelling tools and methodologies such as Arcadia;
- Keeps abreast of relevant technology developments as related to the R&T project;
- Comfortable in an Agile work methodology;
- Perform design reviews per R&T lifecycle;
- Assists in providing leadership and motivation to staff.

## Key Skill Requirements:

The successful candidate should possess a PhD or Masters in **Electrical & Computer Engineering, Computer Science, Robotics** or a related field.

- 1-2 years relevant work experience or equivalent
- Expertise in one or more of the following: Deep Learning, Computer Vision and Machine Learning
- Experience with algorithms for object detection and classification, fusion, control systems
- Experience in C++, ROS, Linux an asset
- Strong knowledge in Kalman Filters, Extended Kalman Filters, and Particle Filters
- Knowledge in control theories including predictive, optimal and robust controls



- Experience prototyping in simulation environments including Matlab/Simulink
- Proficiency with a least one scripting/productivity language such as Ruby or Python
- Knowledge of C#, Javascript, TypeScript, SQL an asset
- Knowledge of National Instruments/Labview an asset
- Experience with GPU acceleration using OpenCL or CUDA an asset
- Strong communication, organizational and problem-solving skills
- Experience with safety critical systems an asset
- Knowledge of railway signalling techniques would be an asset

**Thales is known for its commitment to employees, outlined in its human resources policy: Thales Together. Staffs enjoy a competitive salary and benefits package, as well as opportunities to develop professionally, and define their career paths.**

**If this opportunity interests you, please visit [www.thalesgroup.com/careers/](http://www.thalesgroup.com/careers/) and apply using our e-staffing tool. Thales thanks all applicants for their interest, however, only those selected for an interview will be contacted.**

**Thales is committed to employment equity and diversity in the workplace and welcomes applicants from the four designated groups (women, persons with disabilities, visible minorities, and aboriginals) to apply for employment.**

