

# Sina Tahbaz

Toronto, ON

[sina.tahbaz@gmail.com](mailto:sina.tahbaz@gmail.com)

[linkedin.com/sina-tahbaz](https://linkedin.com/sina-tahbaz)

[sina-tahbaz.github.io](https://sina-tahbaz.github.io)

## Skills

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- **Languages:** C, C++, Rust, Python, Swift, Kotlin, Dart, MATLAB
- **Software:** Nordic nRF Connect SDK, Altium, KiCad, Keil uvision
- **Platforms:** STM32 (CMSIS Bare metal and Cube HAL), nRF52 (Zephyr RTOS), ESP32, AVR (Arduino)
- **General:** Soldering (0402 SMD), Test and debug (Jlink, Logic Analyzer, Oscilloscope, Multimeter), Prototyping (CAD Design, PCB, Assembly), 3D Printing

## Experience

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**Embedded Systems Engineer** – Fibra Inc – Toronto, ON - Full-Time Feb 2024 – Present

- Implemented multi-threaded firmware using Zephyr RTOS and C
- Designed a memory-efficient data structure and a circular buffer for real-time sensor data processing
- Created modular device drivers following structured programming principles
- Reduced product size by 50% integrating a complete BMS and a 6 layer PCB
- Developed iOS and Android applications to facilitate user data collection
- Utilized Git for precise code change management throughout the project lifecycle

**Hardware Engineer** – Torion Plasma Corporation – Barrie, ON - Contract Project Oct 2022 – Feb 2023

- Architected and implemented real-time embedded C++ firmware for precise motor control
- Embedded a TMC motion controller IC, achieving a positional accuracy of  $\pm 0.05$  mm
- Utilized a rotary optical encoder and a 0.9 degree 400 step NEMA17 motor to achieve high precision
- Implemented a compensation algorithm to account for any step losses with an accuracy of 0.2 degrees

**Research Assistant** – York University – Toronto, ON Jan 2022 – Nov 2023

- Fabricated samples of 2D materials using mechanical exfoliation of the crystal flakes
- Deposited a layer of Aluminum on top of the samples and measured the them using FDTR

**Teaching Assistant** - York University - Toronto, ON Jan 2021 - Present

- Provided guidance and support to students in programming courses as a lab assistant
- Fostered a collaborative learning environment that encouraged student success

## Education

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**York University** - MASc. in Electrical and Computer Engineering Jan 2021 – Nov 2023

- Thesis: Investigating thermal properties of 2D transition metal dichalcogenides (TMD)s using frequency domain thermoreflectance (FDTR)

**Shahid Beheshti University** - BSc. in Electrical Engineering Jan 2016 – Dec 2020

## Publications

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**Extreme in-plane thermal conductivity anisotropy in Rhenium-based dichalcogenides.**

- Sina Tahbaz, Simone Pisana. (2024). Journal of Physics: Materials, 7(1), 015014. [10.1088/2515-7639/ad1d8b](https://doi.org/10.1088/2515-7639/ad1d8b)