Title: NMR Physicist

The Basics

- This is a full-time position.
- This person will report to Ian Connell, our Director of Engineering.
- In terms of remote work, we are flexible. If you'd like to relocate to be close to our Toronto office, we will provide financial support. If you'd prefer not to relocate, some travel may be necessary.
- If U.S-based, you must be legally authorized to work in the U.S.
- The salary for this position varies depending on your location (Canada or the US). We’ll share it with you during the intro call.
- Work hours are flexible, but meetings are likely to fall within the traditional 8-5 (EST) workday.

The Details

Hello! My name is Ian Connell, and the Director of Engineering at Synex Medical. We're developing a miniaturized health monitor that can measure critical blood metabolites non-invasively. That technology is based on novel techniques we've developed in magnetic resonance.

We're on track to deliver our MVP (Minimum Viable Product) by the end of March 2022, which will measure glucose and lactate non-invasively. We are gearing up for some big milestones (series A, clinical validation, MVP delivery). To support these goals, we'd like to bring on an NMR Physicist to work alongside our NMR and hardware engineering teams.
Our needs can change very quickly, so the below list isn’t static or comprehensive. However, here’s the type of work you can generally expect to be doing on a day-to-day basis.

- Design and build novel NMR hardware including: linear gradient sets, active shim coils, permanent magnets, and custom electronics.
- Work with engineers, physicists and consultants to design high-homogeneity permanent magnet systems including the use of custom solvers (written in Matlab, Python or C++)
- Perform NMR and basic science experiments to solve complex problems that span a variety of disciplines: optimization, pulse sequence development, hardware calibration and development.
- Utilize a combination of commercial and in-house multiphysics software packages to assist the engineering team design NMR hardware.
- Own the NMR hardware design from concept to production including design for manufacturability, characterization and testing.
- Write scientific reports, white papers, documentation and journal articles.

The Qualifications

To thrive in this role, you’ll need to be familiar with NMR and NMR hardware architecture. Here are a couple of other skills we believe are necessary for your success:

- MSc/PhD in physics, engineering or equivalent.
- Experience developing custom physics toolboxes in languages such as Python, C++ or Matlab to solve a host of computational physics problems.
- Ability to design, build and test custom NMR hardware such as: pulsed field gradients (linear gradient sets), active (resistive) shim coils, and high homogeneity permanent magnets (and assist with passive shimming).
- Adept at performing basic science experiments to verify computational physics solutions and hardware functionality.
- Familiarity with running basic NMR pulse sequences and an understanding of the system architecture.
• Familiarity with PCB design software and the ability to perform basic schematic capture and layout for custom electronics.
• Able to debug hardware and some software.

If this sounds like you (even if you don't have every qualification on the list) please apply! We'd love to hear from you.

And if you want to know more about our benefits and interview process, check out our careers page.

Thanks for reading!