Blue Trail Software

Accelerating Brain-Computer Interface Development at Precision Neuroscience

Client Overview

Precision Neuroscience is a pioneering medtech company developing BCIs to help patients with mobility impairments regain independence. Their platform integrates custom hardware, advanced visualization, and machine learning to interpret neural signals. When BTS joined in March 2025, Precision Neuroscience was preparing its first clinical MVP. Their software team was small and racing against tight deadlines to integrate hardware, process neural data, and deliver a reliable system.

The Challenge

Precision Neuroscience faced:

- Small team: limited bandwidth for ambitious MVP.
- Complex integration: neural signal processing, ML, hardware control.
- Tight clinical timelines: any delay could stall testing or milestones.

> *BTS helped us move faster by contributing across multiple components and delivering high-quality features. Nicolás ramped up quickly, implemented key functionality, and supported our team through code reviews and architectural suggestions, which helped us deliver our MVP on time*
>
> **Kyle Reed**
> Senior Manager, Software, Precision Neuroscience
>
> Precision

The BTS Solution

BTS embedded a senior software engineer, who:

- Built real-time spectrogram visualization for neural signals.
- Introduced multithreading, improving processing speed 10x.
- Designed pub/sub architecture to decouple data acquisition.
- Expanded unit testing and automated build/test pipelines with technologies like Qt/C++, SQLite, Python, PyTorch, Linux, ROS/ROS2, ZMQ, gRPC, and custom hardware integration.

BTS integrated seamlessly, contributing to sprint planning and independently delivering critical features.

> *We collaborated closely with Precision Neuroscience's engineering team to implement best practices in code quality, architecture, CI/CD, and proof-of-concept development. This enabled the transition from MVP to robust solutions while enhancing system resilience and scalability*
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> **Nicolás Logioia**
> BTS Engineer

Tangible Outcomes

- MVP delivered on time at high quality.
- Accelerated clinical testing with real-time visualization.
- Improved team velocity and reduced bottlenecks.
- Stabilized development processes.

Strategic Impact

BTS enabled Precision Neuroscience to:

- Meet ambitious MVP milestones.
- Build a foundation for future scaling and clinical trials.
- Establish a trusted, embedded engineering partnership, influencing their shift toward long-term contractor collaboration.

> *By introducing automated tests, strengthening the CI/CD pipeline, and providing architectural guidance, we helped Precision Neuroscience accelerate development and maintain high reliability, all while working seamlessly as embedded members of their team*
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> **Ariel Schiera**
> BTS Technical Director

Testimonial

> *Working with BTS has been very pleasant all-around. Beyond Nicolás' great technical contributions, I appreciated the flexibility BTS had with us in finding the right engineer for our team. They took on challenging requests and gave us confidence that we'd find a healthy working relationship that was mutually beneficial*
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> **Kyle Reed**
> Senior Manager, Software, Precision Neuroscience
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> Precision