ADDRESSING CMT4J/FIG4 DEFICIENCY USING A PRESSURE-REDUCING CUSTOMIZABLE BOOT

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CMT4J/FIG4 DEFICIENCY PROBLEM

Why Big Pharma Doesn't Care

- Only about **100** patients identified worldwide have the CMT4J/FIG4 specific deficiency

- Intensive R&D costs are **not offset by potential profits,** so prioritization is given to more prevalent rare diseases

- **Very few** therapeutic/pharmacological breakthroughs over past decade

Patients Are Suffering

- Diminishing tendon reflexes **cause joint deformities** which complicate walking

- Walkers, wheelchairs, and current assistive devices are **not personalized** and **often painful**

- Often **misdiagnosed** as acquired neuropathy. Doctors resort to **invasive** and **expensive** measures such as surgery for treatments of phenotype

Financials (TTM)	Comps Set Mean
Total Revenue	$6.79B
Revenue % Growth	193.35%
EBITDA (Analyst Normalized)	$2.71B
Normalized EBITDA Margin	-16,368.95%
EBITDA % Growth	-11.78%
Net Income (Analyst Normalized)	$1.86B
Normalized Net Profit Margin	-16,650.25%
Net Income % Growth	-7.43%
Capital Expenditure to Sales	0.15

Key Companies — PHARNEXT · MedDay DARE TO EXPLORE · HELIXMITH · ENCell · Chong Kun Dang Pharm. Seoul Korea · InFlectis BioScience · addex Therapeutics · AUGUSTINE therapeutics · An Otl

CLASSIC FOOT DEFORMITY PHYSIOLOGY

Stage 1	Stage 2	Stage 3	Stage 4

Progressively Worsen

Heel curving inwards (varus)

High Arch

Claw toes

Muscle Imbalance Producing High Arched Foot

Pull of Tibialis Anterior tendon (weak)

Pull of Peroneus Longus (strong)

www.footEducation.com
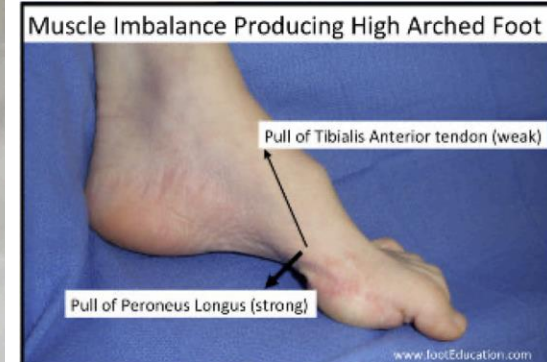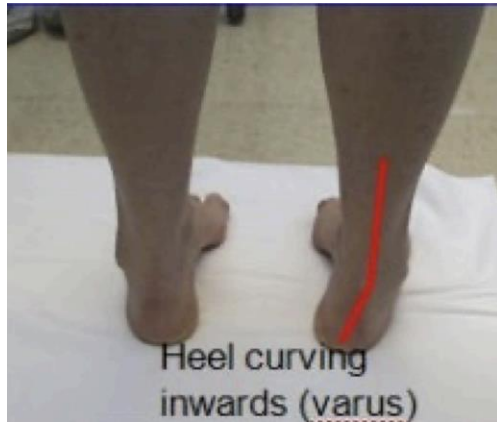
| 1. Peroneus Brevis and Tibialis Posterior enter a tug of war as the Peroneus Brevis becomes weaker, causing the ankle to turn inwards.	2. Tibialis Anterior becomes weaker than Peroneus Longus muscle, which creates the staple "high arch" by pulling the front of the foot down.	3. Intrinsic foot muscles near sole of foot which help control toes become weaker than extrinsic lower leg muscles, causing a clawing of the toes.	4. Anterior compartment muscles (front of shin bone/tibia) become weaker than calf muscles, which leads to a foot drop.

Solution: AI-powered custom brace for preventing muscular dystrophy
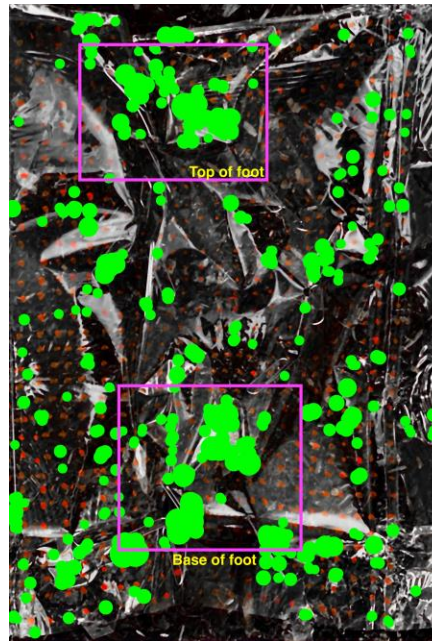
3 STEP APPROACH

I: Creating Surface Model
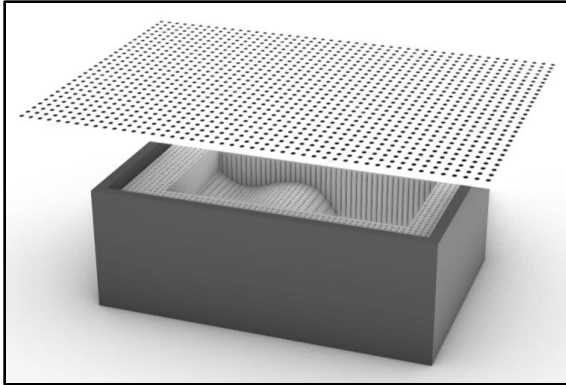
II: AI-Powered App to Generate Continuous Brace Adjustments


III: Customizable Boot

DESIGN: CREATING SURFACE MODEL

Mapping 2D Localized Density to 3D Surface Model

Creating an imprint warps the gridded sheet, generating a contour map of dots as seen below.

1. This can then be translated to a 3D representation of the foot for custom brace adjustment recommendations.
2. Patients step in pin-based mold box, shaping the gridded film
3. Patient scans imprinted film from the top, sending the scan to an AI-powered app to create custom recommendations.
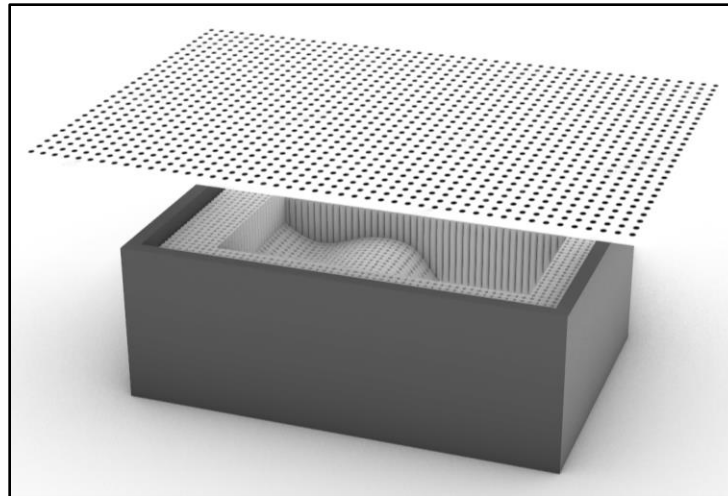
*Pin-art inspired at-home mold to track brace progress.*

1D Representation of Surface Generation (Top View)

DESIGN: AI-POWERED APP

AI-Powered App to Generate Continuous Brace Adjustments

1. The patient **scans their imprint** using their phone. The warped map of dots is **captured** using a Hough Transform in OpenCV.
2. Our platform **clusters together dots** that are close to each other to form a heatmap that captures dot density — this indicates the **contours of the patient's foot.**
3. A pretrained **Deep Q-learning model** is leveraged to find the best sequence of pressure activations in the boot to minimize localized pressure and discomfort on the foot.
4. Recommendations are sent to a companion app that will instruct the user on how they should adjust their boot.
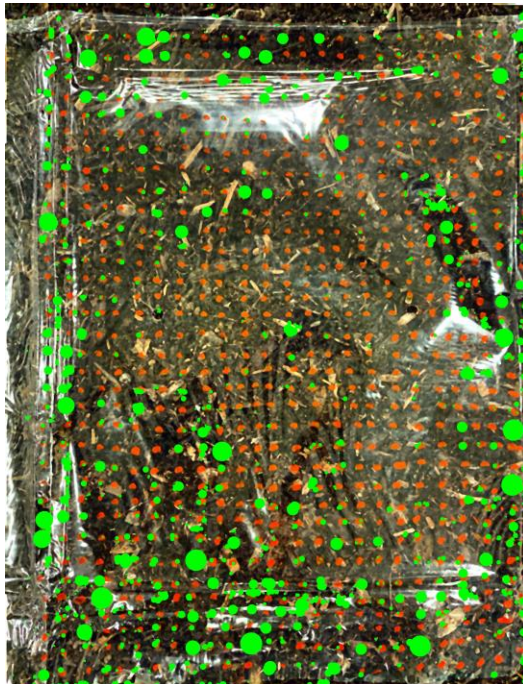
Control: No foot
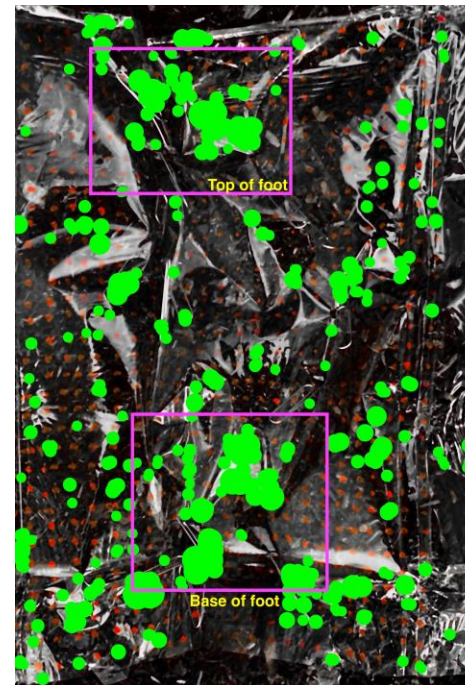
Standard Foot Contours

DESIGN: CUSTOMIZABLE BOOT

3-point Adjustable Boot for Preventing Muscular Dystrophy

A customizable brace was designed with the primary physiological challenges in mind:

1. Artificial Peroneus Brevis and Tibial Posterior to restore angular equilibrium and stabilize ankle (Adjustments 1 & 2)

2. Artificial Tibialis Anterior to prevent high arch development and foot drop. (Adjustment 3)

3. Stabilization of ankle and arch reduces clawing of toes.

4. Viscoelastic sole in conjunction with AI-powered adjustments to minimize pressure points. Comfort + Efficacy.

   o Cross-applicable to any foot-related muscular dystrophy

5. Artificial Achilles Tendon to provide elasticity in gait, allowing for a smooth walking motion

   o Crucial aspect of existing brace technology.
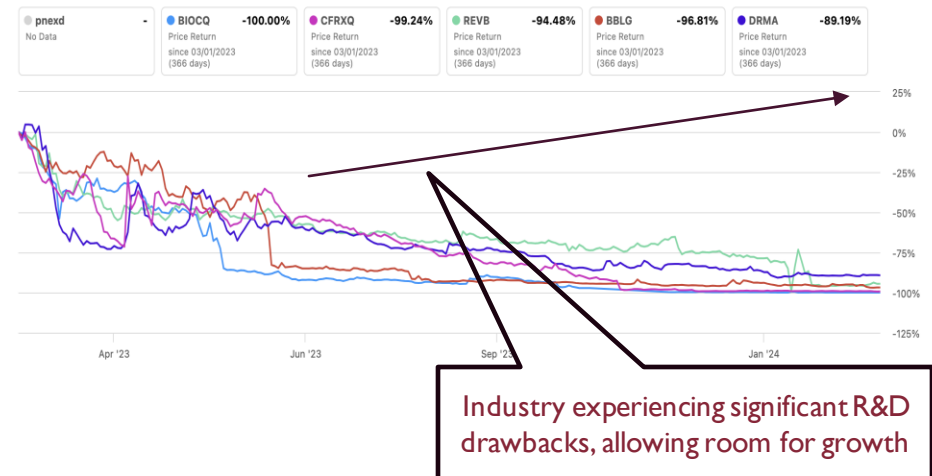
Existing Brace:
- Non-customizable, preset sizes
  - o Phenotype incredibly variable, each individual and each foot has differing geometries.
- Blistering and callousing to fractured foot bones.
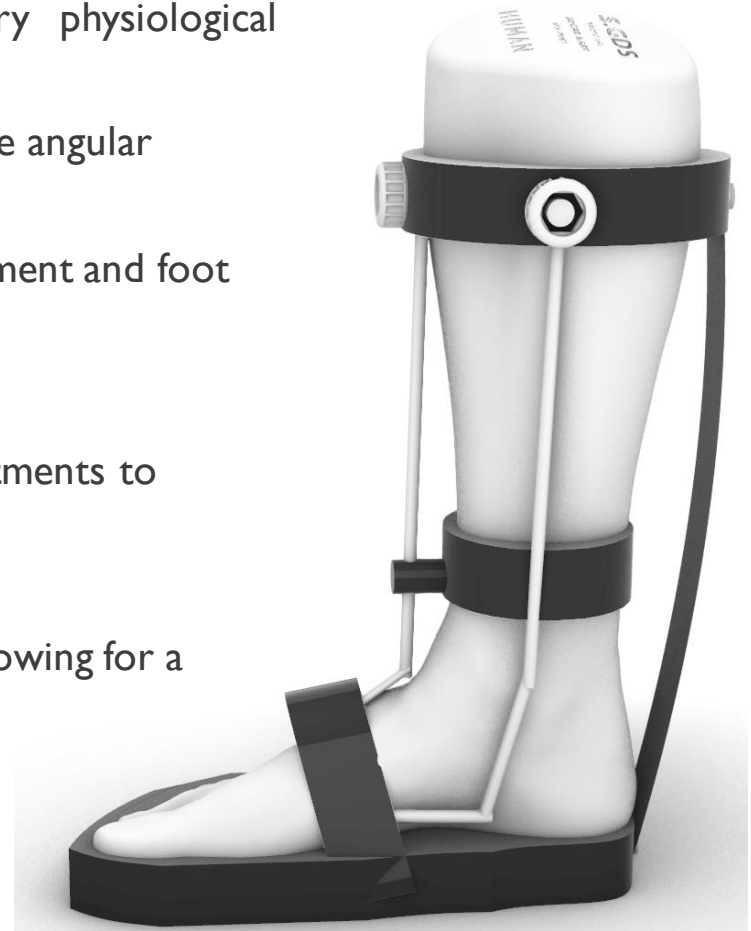
SCALABILITY AND FUTURE DIRECTIONS

CAPITALIZING ON RIFT IN THE CURRENT CMT TREATMENT INDUSTRY

- All incumbents in the CMT treatment market rely purely on pharmaceutical development, pursuing **intensive R&D investments**, which results in operating at a **continuous profit loss**

- We aim to tap into this market potential with **<10% CapEx and R&D figures relative to the market**, raising our profitability by **70%** and valuation by **~5-10x** compared to incumbents

| pnexd | - | BIOCQ | -100.00% | CFRXQ | -99.24% | REVB | -94.48% | BBLG | -96.81% | DRMA | -89.19% |
| No Data | | Price Return since 03/01/2023 (366 days) | | Price Return since 03/01/2023 (366 days) | | Price Return since 03/01/2023 (366 days) | | Price Return since 03/01/2023 (366 days) | | Price Return since 03/01/2023 (366 days) | |

Industry experiencing significant R&D drawbacks, allowing room for growth

HARNESSING MEDTECH INNOVATION TO PAVE THE WAY IN THIS $50M MARKET

- We bring a significantly more viable and adoptable solution to the table, challenging big pharma competitors with our **affordable, Point of Care treatment**

- Matching the demand of an **untapped $500M market** with a **CAGR of 23.9%,** we aim to gross **high profit margins and recurring revenue** while serving **a niche customer base**, ultimately solving a pressing issue **without incurring negative profit margins**

Global Charcot-Marie-Tooth Disease Type I Market Size (2021-2028)

CAGR ~23.9%

$480 Mn

$632 Mn

Revenue (USD Mn/Bn)

2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030