

[ ROLE ] SOFTWARE · PINPOINT ● OPEN

# Senior / Staff Software Engineer — Pinpoint.



COMPANY	LOCATION	COMPENSATION	REPORTS TO
Fyous	Sheffield, UK	Competitive + meaningful equity	Founder / CTO
	Remote considered		

## [ 01 ] Help us delete an industry's waste problem.

The global clear aligner market is worth around £5 billion and growing at ~27% a year. Every aligner on the planet is currently made the same way: a one-shot resin mould is 3D printed, used once, and thrown away. A typical patient burns through ~52 of them. A mid-sized lab spends upwards of **£400,000 a year on resin that ends up in a skip.**

We've invented the thing that kills that.

Fyous has built PolyMorphic Moulding — a world-first manufacturing technology that uses tens of thousands of digitally controlled pins to form a mould in minutes, thermoform a part directly over it, and then reconfigure into the next shape. No resin. No waste. No single-use tooling. Our Ghost dental machine is the first commercial application of this, and it's about to change how clear aligners get made.

There's just one thing standing between the hardware and the world. The software. That's the job.

## [ 02 ] What you'll build — Pinpoint.

Pinpoint is the computational brain of Ghost. It takes a patient's STL dental scan and works out exactly how ~20,000 individually addressable 0.3 mm pins — approaching from multiple directions — should configure themselves to form the mould. Then it validates that the result will actually thermoform a clinically acceptable aligner before a single pin moves. You'll own the full pipeline.

[ 01 ] Geometry engine STL ingest, mesh repair, surface analysis, curvature and normal computation across meshes up to 500k+ triangles.	[ 02 ] Multi-directional pin projection The core of the system — projecting tens of thousands of pins from multiple tool directions, picking the right pin per region.
[ 03 ] Split-line computation Deciding dynamically where coverage hands off between tools so the formed surface is seamless.	[ 04 ] Surface mapping & gap resolution Turning a discrete pin field into something that behaves like a continuous mould.
[ 05 ] Validation Predicting forming defects — undercuts, bridging, thinning — before they happen. Bar: zero defect escapes.	[ 06 ] Compensation engine An adaptive, data-driven system that learns from real forming results to refine material behaviour models over time.
[ 07 ] Operator UI & machine output A cross-platform desktop app a lab technician can drive a 60-stage case through in under two minutes of manual interaction.	

PERFORMANCE TARGET · STAGE <b>&lt; 30 sec</b>	PERFORMANCE TARGET · CASE <b>&lt; 30 min</b>	UPTIME · PRODUCTION HARDWARE <b>Days non-stop</b>
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[ 03 ]

## Why this is a great job.

<p><b>FOUNDING SOFTWARE HIRE</b> Employee-grade-early on the software side.</p> <p>Pinpoint is a green-field build. You set the architecture, choose the stack, and shape the software team from here. No legacy to inherit. No committee to negotiate with.</p>	<p><b>EQUITY THAT MATTERS</b> £3.2m raised. Series A in 2027.</p> <p>Deep-tech hardware business. Innovate UK grant. Three patents pending. Backers include Scott Crump (inventor of FDM, founder of Stratasys) and Al Siblani (EnvisionTEC, \$300m exit). Founder Josh Shires previously exited Mous at £56m.</p>
<p><b>A REAL PROBLEM</b> Every layer of the stack is non-trivial.</p> <p>Computational geometry. Multi-directional projection. Material behaviour modelling. Real-time 3D visualisation. Production-grade machine control. Rare to find a software role where everything is interesting.</p>	<p><b>WHERE YOU'LL WORK</b> Sheffield-shaped, UK-flexible.</p> <p>HQ is Sheffield where the machines live — and that's where this role works best. Elsewhere in the UK is fine; we'll find a rhythm. Outside the UK and right for the role: we'll make it work, but you'll be in Sheffield often enough that the hardware doesn't feel abstract.</p>

**[ 04 ] · ONE NON-NEGOTIABLE**

**You build with AI.**

If you are not actively building with AI — Claude Code, Cursor, Codex, whatever the bleeding edge looks like the week you read this — you are not our candidate. We are not looking for someone who wants to sit and type code. We are looking for someone who treats AI tools as a force multiplier on their thinking, has strong opinions about how to use them well, and is already an order of magnitude more productive than two years ago because of them.

This is not about replacing engineering judgement. The hard parts of Pinpoint — architecture, geometry, trade-offs, taste — are still on you. But the throughput we need from a one-person software function in a hardware company shipping into medical is only achievable if you lean into every tool available. If your instinct on reading that is excitement, we should talk. If it's defensiveness, we shouldn't.

[ 05 ]

## What we need from you.

<p><b>MUST HAVE</b> Core engineering.</p> <ul style="list-style-type: none"> <li>– Deep C++ or Rust in a performance-critical production context.</li> <li>– Computational geometry, mesh processing, or 3D graphics background. Not a wrapper-around-a-library job.</li> <li>– Shipped production desktop or embedded software that runs reliably for days.</li> <li>– Comfort owning a system end-to-end: architecture, implementation, performance, the lot.</li> <li>– Judgement to know when to build something clever and when to ship the simplest thing that works.</li> </ul>	<p><b>STRONGLY PREFERRED</b> Adjacent depth.</p> <ul style="list-style-type: none"> <li>– GPU compute — CUDA, OpenCL, or compute shaders — on real workloads.</li> <li>– Familiarity with CGAL, libigl, Open3D, or equivalents.</li> <li>– Hands-on with CAD/CAM, slicer software, dental tech, additive manufacturing, or any field where geometry meets physical machines.</li> <li>– Software that talks to hardware — serial protocols, machine controllers, motion systems.</li> <li>– Cross-platform desktop UI work (Qt, Electron, or a strong opinion on what's better).</li> </ul>	<p><b>NICE TO HAVE</b> Bonus signal.</p> <ul style="list-style-type: none"> <li>– Differential geometry, optimisation, or applied ML background.</li> <li>– Medical device software experience — MDR, FDA 510(k), IEC 62304.</li> <li>– Built and run a small engineering team before.</li> </ul>
<p>You do not need a dental background. You do not need a medical background. We will teach you the domain. We need you to be excellent at the engineering.</p>		

[ 06 ]

## What the next six months looks like.

<p><b>[ PHASE 01 ]</b> Can we produce a mould and form a part?</p> <p>Core pipeline end-to-end. STL ingest, multi-tool projection, surface mapping, basic validation, machine output. Ghost making real moulds and forming real aligners from real patient data.</p>	<p><b>[ PHASE 02 ]</b> Is the part clinically accurate?</p> <p>Smoothing, stability-aware pin selection, split-line optimisation, the first compensation framework. Aligners off the machine hit ±0.1mm at critical points.</p>	<p><b>[ PHASE 03 ]</b> Can labs use this at scale?</p> <p>Full operator UI, batch processing, queue management, reporting and traceability, multi-machine support. Machines start landing in dental labs.</p>	<p><b>[ PHASE 04 ]</b> Can we outperform competitors?</p> <p>Advanced compensation models, data-driven optimisation, deeper IP. Where the moat gets built.</p>
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↳ REALISTICALLY ABOUT 3-4 MONTHS FROM PHASE 1 FIRST LIGHT, DEPENDING ON HOW FAST YOU AND THE TEAM MOVE.

<p><b>[ 07 ] · HOW TO APPLY</b></p> <p>No cover letter. No buzzwords.</p> <p><a href="mailto:careers@fyous.com">→ careers@fyous.com</a></p>	<p>SEND A SHORT 2MIN VIDEO WITH:</p> <p><b>[ 01 ]</b> Something you've built that you're proud of — code, paper, product, anything. Depth over breadth.</p> <p><b>[ 02 ]</b> A few sentences on what part of Pinpoint you find most interesting — and if you think we've got something wrong in the brief, say so.</p> <p><b>[ 03 ]</b> Whatever else you think we should know.</p>
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