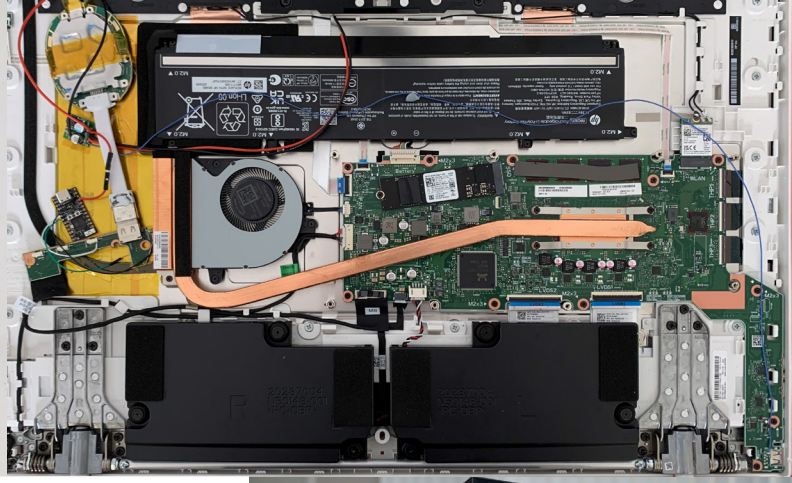
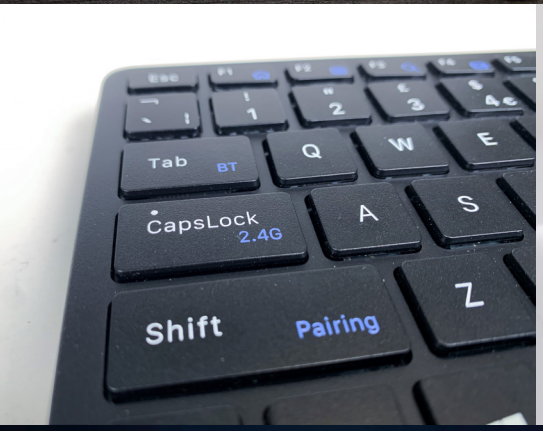
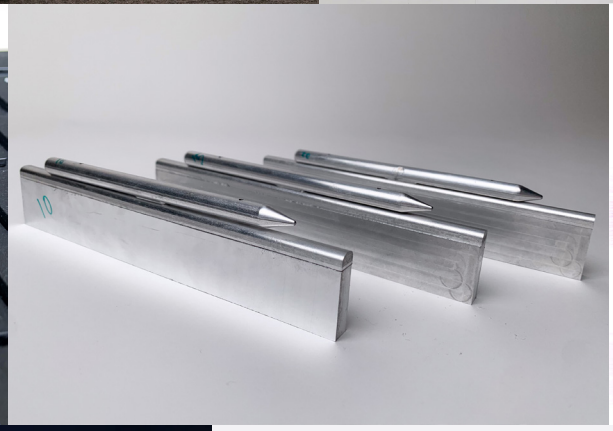
DESIGN ENGINEERING PORTFOLIO

DYLAN BOGOD







Front-end innovation for consumer electronics giant HP, forms much of my work at Native. To preserve confidentiality, this collage mixes current products representative of my work, alongside snapshots of unreleased projects.

CONSUMER ELECTRONICS (HP)

A cost-down redesign of the global best-selling POS system, HP Engage One Pro.

I developed novel hinge mechanism to increase range of tilt, replacing 3 existing SKUs with single option.

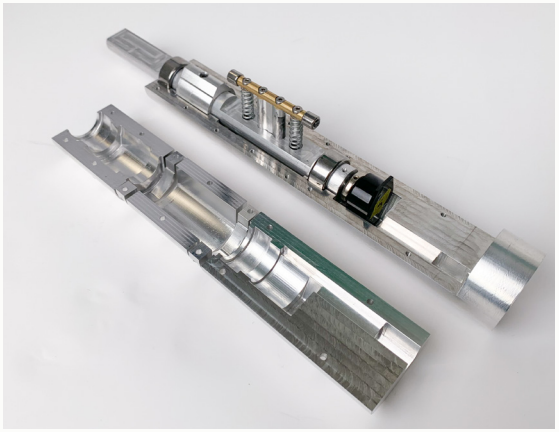
A novel PC design pushing the limits of small form factor gaming. System design innovation allowed for an improved aesthetic without compromising airflow.

A game-changing 3D video-conferencing collaboration between Google & HP. I worked on build strategies and mechanical design intent throughout the product development process.


Start

OTHER NATIVE PROJECTS

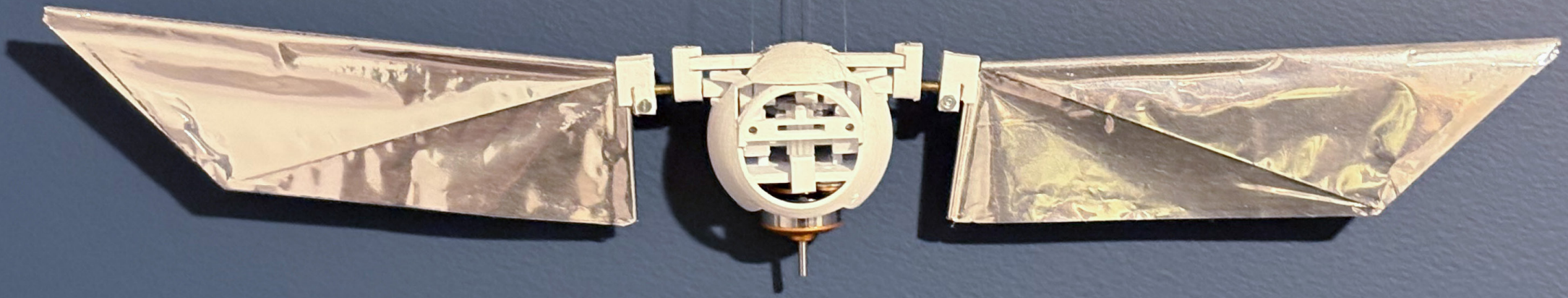
A flagship new treadmill from NordicTrack. I designed the control handles, creating an intuitive, tactile interaction, without compromising robustness.



A surprising amount of engineering is crammed inside a handle. I developed a novel sprung cam mechanism for a varying force profile along the stroke, giving a finely tuned feel to the lever.

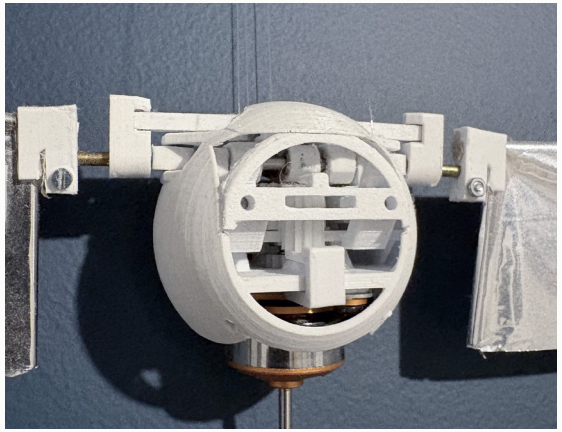
Cellanome's ground-breaking cell analysis machine. I designed and prototyped a low cost solution for achieving ISO standard air purity inside the working area.

Native has supported Illumina on many of its industry-leading sequencing machines. I provided mechanical design and validation for the MiSeq i100 Series consumable loading mechanisms.

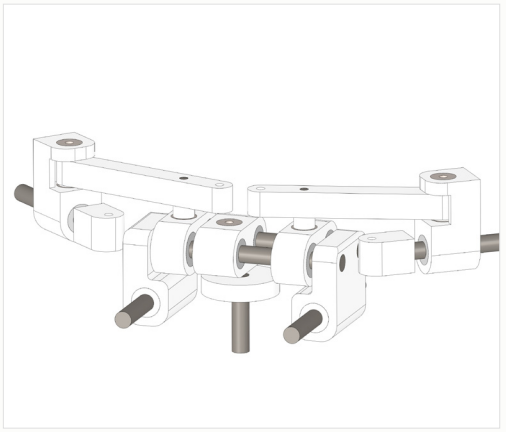


THE GOLDEN SNITCH

You can give a kid a bedsheet, tell them it's an invisibility cloak and they'll run around with it all afternoon. It's much harder for an adult to experience moments of magic.



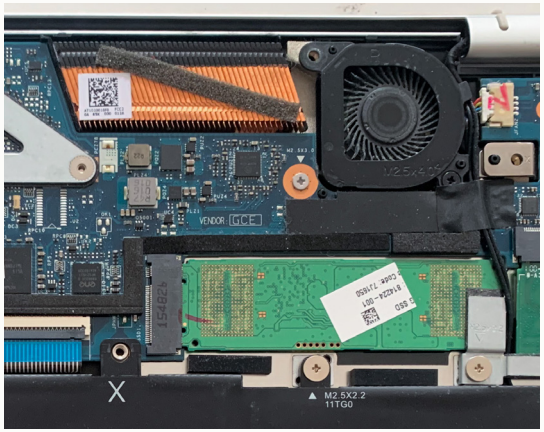
This project attempted to recreate the Golden Snitch from Harry Potter – a stripped down flapping-wing micro air vehicle that would hover for a few seconds, enough to capture that same magic, even if just for a moment.



In contrast to the 5 military-backed research groups working on flapping flight at this scale, my premise was to remove the heavy/complex control mechanism, utilising intrinsic pendulum-like stability and a balanced mechanism with quarter-wave symmetry.

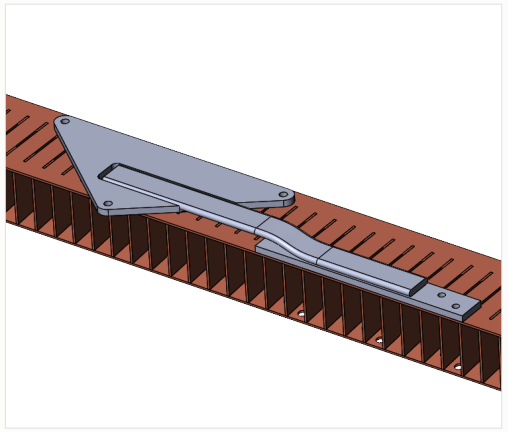
Prototyping mid-pandemic with DIY tools and a low-grade FDM printer was challenging. The wings flapped 10 times a second before the inertial forces tore the FDM pieces apart.

PASSIVE LAPTOP COOLING



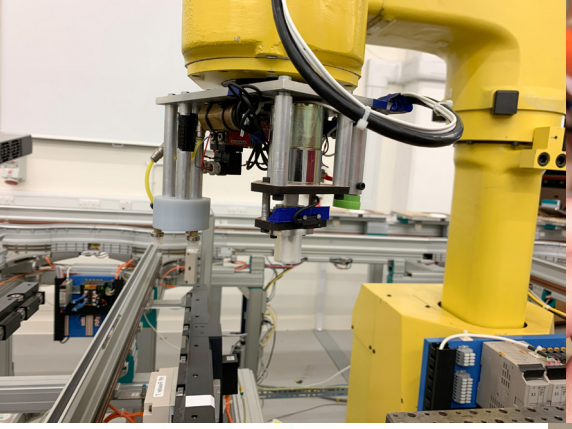
Frustrated by the poor thermal design of my struggling 8 year old laptop, and emboldened by my work in consumer electronics, I decided to upgrade its cooling system.

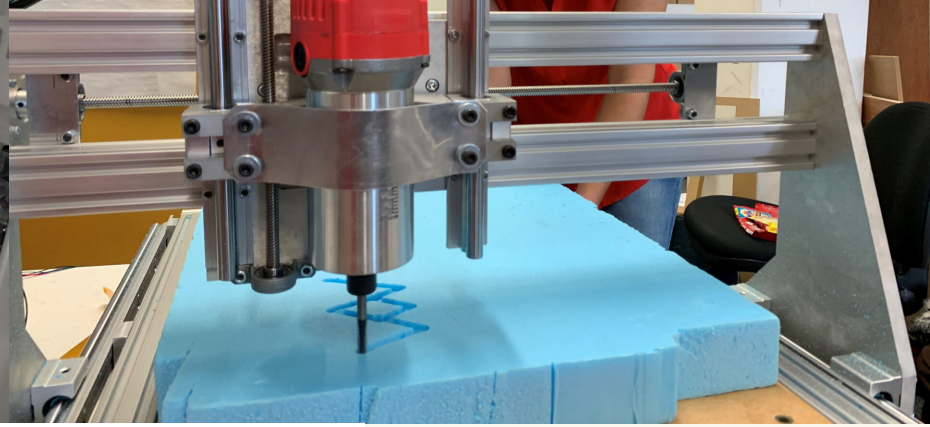
With no room internally for effective airflow, I built a custom heat pipe assembly to move the heat out of the chassis to an experimental silent passive cooler I designed.

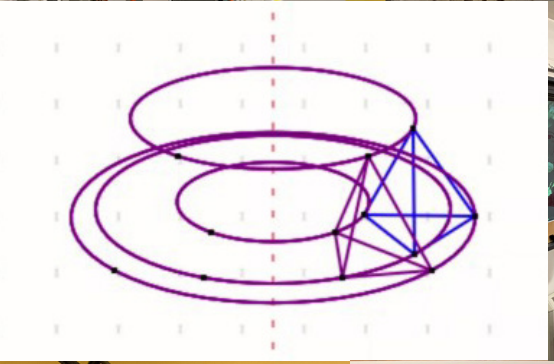


I developed the process myself for a similar work project. With minimal information online, I combined theory with parallel examples, experimenting to unlock new capabilities for thermal innovation.

Design for uncertainty is a key part of my prototype development. Simulations require every parameter to be set, which is impractical at concept stage. I prototype with a focus on adjustability and measurability as a basis for effective iterative design.





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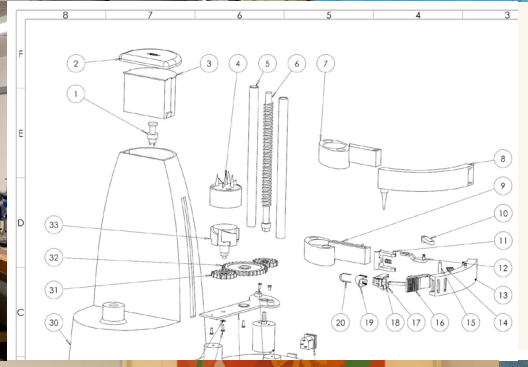

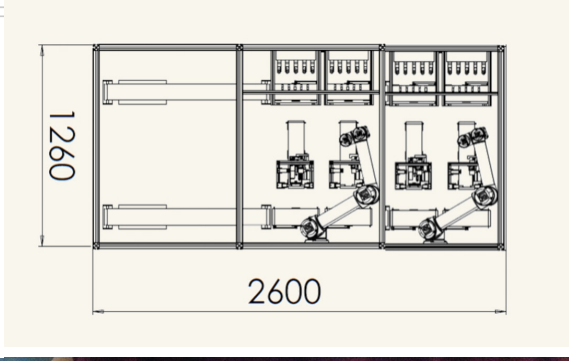
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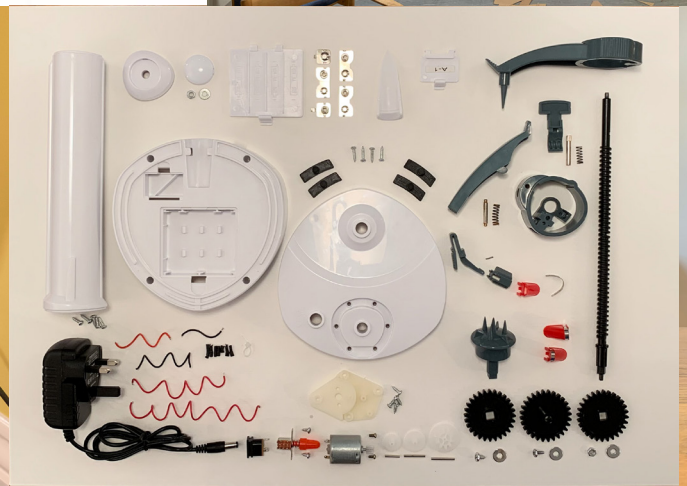
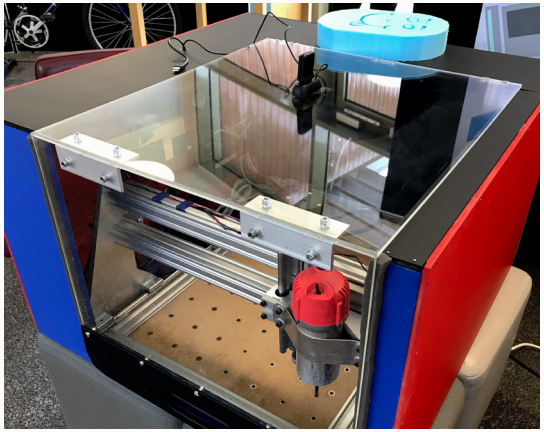
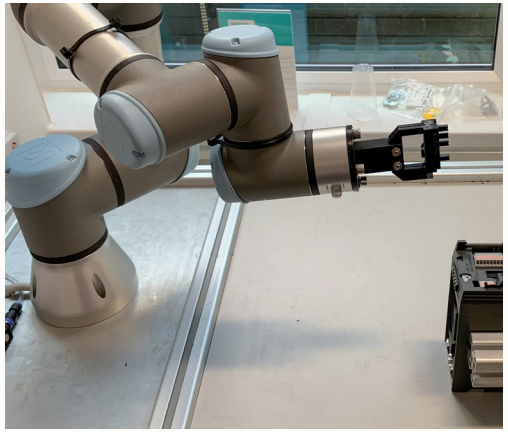


OTHER PROJECTS

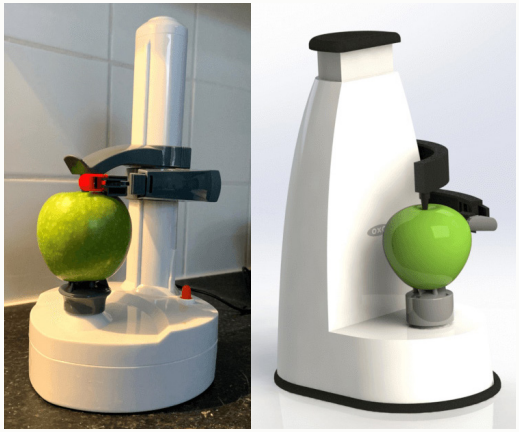


A touch-controlled tabletop CNC router that cuts out the paths you draw digitally onto the material.

A TV stand that explores materials used out of context. The thin wooden sections with hand-crafted waterfall joints look both familiar and unnatural as a self-supporting silhouette.



One of several industrial robotics projects, a production line robot arm programmed to plug in connectors by mimicking the compliance of a human hand.



OEM redesign challenge of an electric peeler for improved functionality, DfM & brand.