

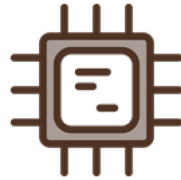
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BROWN TECHNOLOGY INNOVATIONS

Quarter in Review | January-March 2023

Spotlight on



Technology

Active Flow Control of Membrane Wings

The development of active flow control techniques for membrane wings is becoming increasingly important with the ongoing development of micro air vehicles (MAVs). Yet active flow control for membrane wings is limited by the flexible nature of the wing surface. [Kenny Breuer's lab](#) has invented a membrane wing that achieves active flow control through use of a dielectric elastomer actuator as the membrane material. Under aerodynamic load, the membrane wing stretches, leading to thinning of the membrane and increased capacitance. The membrane's electroactive properties provide lift enhancement of up to 20 percent, increased stall margin, foldability, and low mass. Knowledge of the

membrane's elastic and dielectric properties can be used to determine the amount of steady aerodynamic lift generated, as well as time-dependent properties. Contact [Brian Demers](#) to learn more.

For investors, entrepreneurs, and companies interested in seeing other Brown technologies, click [here](#).



Startups

Circadian Positioning Systems

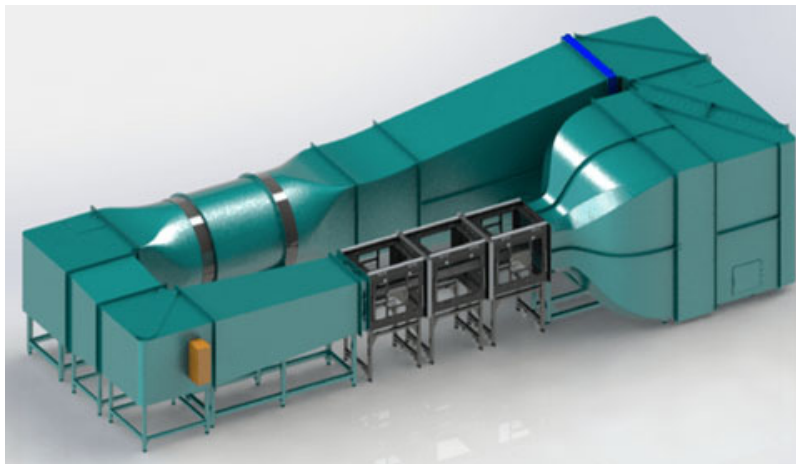
[Circadian Positioning Systems](#) (CPS) has developed a data-backed lighting system that helps align the body's sleep-wake cycle with work schedules. Working with the U.S. Navy and Marines after fatigue had been cited in several fatal wrecks, CPS founder and CEO Eliza Van Reen, who received her PhD from Brown, realized that her findings were applicable to workers in all round-the-clock Industries in which alertness and attention are critical. CPS is currently focused on finding solutions for the yachting industry. The company's system uses an app on a watch-like wearable device that collects the user's sleep-wake data. The data is then put through proprietary algorithms that create schedules for precisely timed exposure to lights with specific spectral qualities and characteristics. These "light recipes"

can be used with any smart lighting system.

Contact [Brian Demers](#) to learn more.



Research



Kenny Breuer's Animal flight and Aeromechanics Wind Tunnel

Avocet LLC to Conduct Wind Tunnel Study in Breuer Lab

Avocet LLC has been awarded a Rhode Island Commerce innovation voucher, which it will use to work with [Kenny Breuer's lab](#) to conduct a wind tunnel study. The results will be used to analyze the performance of Avocet's improved wind turbine blade design. The experiments will be conducted in the new wind tunnel which was installed in Breuer's lab in 2019. The tunnel has an innovative design with an overall footprint area less than half that of a conventional wind tunnel with comparable performance. Suitable for both aerodynamic and animal flight experiments, the

tunnel can be used by researchers based at Brown University, other research institutions, and public and private companies. It is available for use on a weekly basis for modest usage fees. Contact [Brian Demers](#) to learn more.

Quarter in Review

The third quarter was marked by a strong uptick in invention disclosures from Brown faculty. Bio Med continues to lead the university in disclosures (25) this year with the School of Engineering (13) behind. Overall, we are ahead of the pace from last year. Confidentiality agreements lag from this time last year which could augur subsequent drops in deal flow.

While the SRA volume held with previous periods, the option and license number dropped significantly. 3Q22 was marked by very strong non-exclusive licensing volume, while this fiscal year has seen an uptick in exclusive licenses and options. Our startup pipeline has also continued to grow compared to previous periods.

An important part of that startup growth has been our Entrepreneur Connect program which connects serial entrepreneurs with faculty innovation to grow new startups; and a sustained presence on the conference circuit for business development. Along those lines, the Tech Innovations team focuses on both our life science and technology patent portfolios with attendance at the upcoming BIO conference in June and a Quantum Computing conference in April. See below for more details.

Drawing upon the success of our CEO/Faculty roundtable around computer vision in December, Brian Demers hosted [FM Global](#) at Brown for another roundtable discussion around technology and climate. Featuring noted Brown researcher Kim Cobb, director of the [Institute at Brown for Environment and Society](#), this robust discussion explored ways that Brown research can address the challenges of businesses around climate change.

It's been our observation that the "roundtable" format, in which faculty and company representatives meet in person to discuss pre-arranged topics is an engaging activity that is a good use of faculty time to develop relationships with industry partners. If your lab, group or department has interest in developing similar roundtables with companies, please let our [business development directors](#) know and we will help with planning and execution.

Third Quarter Numbers for FY23

Put Brown Technology First

Disclosures

FY23 | 32

FY22 | 26

Amplify Networking

Confidentiality Agreements

FY23 | 12

FY22 | 23



Steward Brown Inventions

Patents Issued

FY23 | 7

FY22 | 5



Streamline Deal Execution

Options + Licenses

FY23 | 1

FY22 | 10



Streamline Deal Execution

Sponsored research agreements

FY23 | 2

FY22 | 2

Brown Technology in the News



BTI hosts FM Global and Brown Researchers on January 27, 2023

BTI hosts FM Global roundtable

Researchers from the Institute at Brown for Environment and Society (IBES) and the School of Engineering met with senior leaders from [FM Global](#) to discuss climate change and risk management in relation to the insurance industry, with a focus on climate science, technology, policy, and solutions.

Brown's Initiative for Sustainable Energy

Brown recently announced a new initiative that will focus on renewable energy, energy efficiency, and sustainable fuels and materials. Nitin Padture (School of Engineering) will serve as founding director. Faculty from across multiple disciplines will collaborate on this important initiative. Learn more, [here](#).

Dr. Laiwalla to participate in Equalize Program

Dr. Farah Laiwalla has been accepted to the 2023 MedTech cohort of the 6-month [Equalize Program](#), which pairs women academic researchers with mentors in entrepreneurship across therapeutics, medical technologies, physical sciences, and digital tools sectors.



Visit our website for more detail on these and other stories.

News Stories

Upcoming Opportunities

Save the Date: Innovation@Brown Showcase on October 5

The Innovation@Brown Showcase will highlight startup activity in the Brown/Rhode Island technology ecosystem while providing an

opportunity to network with like-minded investors, academic researchers, and entrepreneurs and to celebrate groundbreaking inventions. Join our email list to learn more, [Subscribe here](#).

Brown to attend Quantum.Tech Conference

Brown Technology Innovations will attend the Quantum.Tech Conference April 24-26 in Boston. Please contact [Brian Demers@brown.edu](mailto:Brian_Demers@brown.edu) or [Victoria Campbell@brown.edu](mailto:Victoria_Campbell@brown.edu) with information or connections related to the conference.

Brown to attend BIO International Convention 2023

Brown Technology Innovations will attend the annual BIO International Conference June 5-8 in Boston. Please contact [Andrew Bond@brown.edu](mailto:Andrew_Bond@brown.edu) or [Melissa Simon@brown.edu](mailto:Melissa_Simon@brown.edu) with information or connections related to the conference.

NEMIC launches virtual classroom

Want to explore medical device or digital health entrepreneurship? Our partners at [NEMIC](#) just launched the [NEMIC Virtual Classroom](#). Learn where you want, when you want!

Investors, entrepreneurs, and companies interested in seeing other [Brown technologies](#).

Meet the Team

[Reporting an Invention and other resources for Faculty and Staff](#).

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