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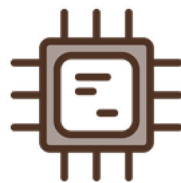


BROWN TECHNOLOGY INNOVATIONS

Quarter in Review | July - September 2022

For our new fiscal year, we are pleased to roll out an updated version of our quarterly report. In keeping with our motto of "Technology First," we are looking to shine a spotlight on the technology, startups, research, and deals that are being generated here at Brown. Let us know what you think about these stories and the new format at tech-innovations@brown.edu.

Spotlight on



Technology

Brown physics lab develops skyrmion-based true random number generator

As computational power increases, a need for more sophisticated random number generation has emerged due to applications such as cybersecurity, data storage and artificial

intelligence. Traditional random number generators are based on programmed algorithms, and their outputs are not truly random. This leads to security challenges. [Gang Xiao](#)'s lab (Physics) has developed a novel, skyrmion-based true random number generator (TRNG) that can be effectively tuned by applied magnetic field and current to exploit the fluctuating states of these quasi-particles. Such a skyrmion-based TRNG could be used in quantum, neuromorphic and probabilistic computing systems of the future to address the unique demands of these new computing paradigms. Contact [Brian Demers](#) to learn more.

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



Startups

BTI helps launch XM Therapeutics

The extracellular matrix (ECM)—the scaffolding material that organizes cells into tissues and organs—proactively participates in chronic disorders and cancer, enabling continued inflammation, fibrosis, and ischemia. Based on technology developed in [Jeffrey Morgan](#)'s lab, [XM Therapeutics](#) develops practical, injectable human ECM particles that directly modulate the dysfunctional ECM to improve tissue function and

enable organ repair. Initial focus of the technology platform is on cardiovascular and pulmonary indications, with significant potential in other diseases. BTI helped to recruit the company's CEO, [Frank Ahmann](#), a serial entrepreneur with 30 years of experience in the biotech and medical device industries.



Research

Brown seeking industry collaborators for major NSF proposals

These will bring together engineers, data scientists, health care providers, public health researchers, and companies to design new health technologies that can monitor the home environment, evaluate patterns in cognitive and physical function, and assess disease risk and progression. The goal is to make these technologies affordable and accessible to everyone, so as to not perpetuate existing disparities or create new ones. The proposals emphasize technology innovation, as well as workforce and economic development. BTI will be helping to identify potential industry collaborators for these proposals. Please contact [Melissa Simon](#) if you are interested in learning more.

Quarter in Review

In the first quarter of FY23, BTI saw a notable increase in industry-sponsored research agreements (7) over last year (2).

Our Business Development directors are back on the conference circuit, attending biotechnology conferences [BioPharm America](#) and [BIOMEDevice Boston](#), as well as the [Masters of Scale Summit](#). BTI also participated in [Rhode Island Startup Week](#). All these activities are aimed at driving new technology deals and startups. See our statistics below.

This quarter we also officially launched Brown Innovation Fellows. The new fellowship allows graduate students, medical students, and postdocs to apply their scientific and technical expertise to projects in technology evaluation, market research, and intellectual property. Please contact [Melissa Simon](#) if you are interested in learning more about the program.

First Quarter Numbers for FY2023



Disclosures

FY23 | 18

FY22 | 18



Confidentiality Agreements

FY23 | 23

FY22 | 20



Patents Issued

FY23 | 4

FY22 | 13



Options + Licenses

FY23 | 7

FY22 | 7

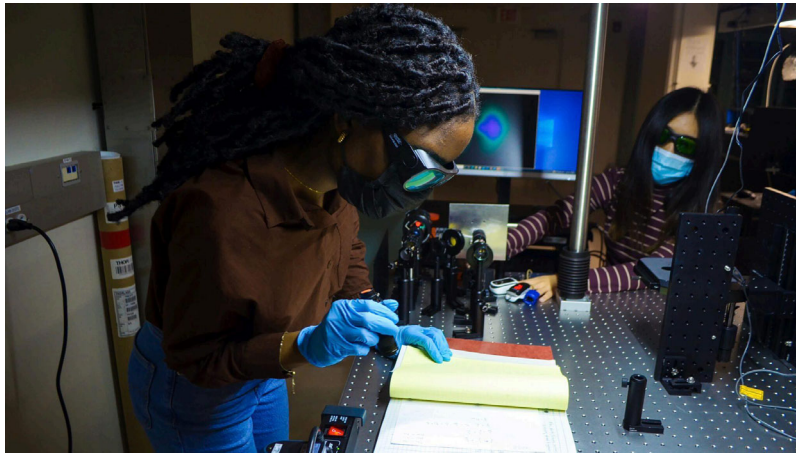


Sponsored research agreements

FY23 | 7

FY22 | 2

Brown Technology in the News



Brown University doctoral student Rutendo Jakachira is helping to develop a next-generation pulse oximeter she hopes will work well on patients of all skin tones, not just those with lighter skin.

Designing a more inclusive pulse oximeter

Pulse oximeters [fail to accurately measure](#) blood oxygen levels in patients of color. To combat this issue, Brown doctoral student [Rutendo Jakachira](#) of the Toussaint Lab is developing a pulse oximeter that works on all patients, regardless of melanin levels.

Bolden Therapeutics awarded two SBIR grants

Brown startup Bolden was awarded two Small Business Innovative Research (SBIR) grants for \$497,500 and \$406,466 from the National Institute on Aging (NIA) of the NIH. Bolden Therapeutics is a biotechnology company that develops therapeutics to promote neurogenesis in patients with diseases that affect cognition, such as Alzheimer's. Read more [here](#) and [here](#).

TissueSHOCK technology is an IET Global Innovation Award finalist

Biomedical engineering Ph.D. candidate Cel Welch and Professor Anubhav Tripathi are among the [top five global finalists](#) in the Institute of Engineering and Technology's Solution in Digital Health and Social Care category for their [TissueSHOCK technology](#), a novel electrical method to dissociate tissues for downstream single-cell analysis.



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

News Stories

Upcoming Opportunities

Open Enrollment: NEMIC's 4th Annual Med Tech Leadership Program

BTI's Brian Demers will be teaching "IP and Tech Transfer Basics" at the 4th Annual Med Tech Leadership Program. Led by industry experts at the NEMIC Foundation, courses will begin November 2022 and run through April 2023. Learn more and register [here](#).

Brown Technology Innovations to Attend JPM Annual Healthcare Meeting 2023

Brown Technology Innovations will attend the 41st Annual JPM Healthcare Meeting, which will take place January 9–12 in San Francisco, CA. Please contact us (tech-innovations@brown.edu) with news or connections related to the conference.

Call for Proposals! Science2Startup is back! 2023 Invitation-only biotech symposium in 2023

This one-day symposium on May 3, 2023, in Cambridge, MA, will feature presentations from top therapeutics researchers to a select audience of experienced biotech VCs, entrepreneurs and senior executives. Therapeutics-focused researchers at Brown University are invited to [submit one-page proposals](#) by December 5, 2022.

Accepting Applications: Brown Biomedical Innovations to Impact

The Brown Biomedical Innovations to Impact (BBII) is an accelerator fund that supports biomedical technologies with high impact potential to attract industry partners and investors. Since the program was launched in 2018, we have completed four proposal/award cycles, made 17 awards supporting 15 faculty inventors and their technologies, and seen the

launch of 3 startup companies. BBII will start accepting pre-proposals in November, with a deadline (TBA) in December. Learn more about BBII [here](#) or contact [Karen Bullock](#).

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

Meet the Team

Are you a faculty member with new ideas for an invention? Click [here](#) for our invention disclosure form.



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