



UBC SEED FUND

UNLOCKING THE POTENTIAL
OF VENTURE CREATION at UBC
THROUGH THE TIMELY ACCESS TO EARLY RISK CAPITAL

Annual Report 2019

UBC SEED FUND



MESSAGE FROM LEADERSHIP

The UBC SEED FUND was launched in 2013 as a new initiative to support the creation and growth of startups and spinouts connected to the university. This year marks the fund's seventh year of operation and we are proud of the positive impact it has had in helping to build UBC's burgeoning venture ecosystem.

To establish and kick-start the UBC SEED FUND the university received a funding grant from the BC Innovation Council (now innovateBC). All of the UBC SEED FUND's investment capital has been provided through the generous donations of private individuals.

The UBC SEED FUND provides early stage investment funding and venture building support to new ventures where the founders are either faculty members, staff, current students or recent alumni of the university. Since inception the fund has made equity investments into nineteen ventures. These ventures are a balanced mix of spinouts (i.e. based on intellectual property licensed from UBC) and startups (those ventures not based around outputs of the university's research). Student founded ventures represent nearly one-half of the fund's portfolio of investments.

Our portfolio ventures began as ideas and scientific insights, but their impact on the regional economy is tangible and real. These ventures currently employ over 400 people - up from just under 300 employees just 12 months ago. The management and staff employed by our ventures pay provincial and federal taxes, buy homes, rent apartments, shop in our community and send their kids to local schools. Within their midst are many potential leaders of the future who will be the creators and builders of future BC businesses.

The growth our ventures have achieved is truly impressive. The cumulative lifetime revenues of the portfolio ventures hit \$70 million this year. This is a noteworthy outcome given the fact that the cumulative lifetime revenues of the ventures prior to taking investment from the UBC SEED FUND was less than \$500k.

Local and international investors have also come to recognize the growth prospects of our portfolio of UBC ventures and follow-on equity funding in the companies seed funded by the UBC Seed Fund now exceeds \$160 million.

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The products and services being commercialized by the ventures are also delivering positive societal and environmental impact. Our ventures offer solutions that address water safety, reduced pesticide use, remote health monitoring, electric vehicles and pollution control as examples.

Through the building of successful spinout businesses UBC researchers can see their inventions and innovations come to life. A track record of knowledge mobilization via company formation can be a positive factor for attracting new research funding.

We look forward to continuing to support even higher levels of venture creation at UBC and delivering the associated positive outcomes to the community and the university this promises.



Todd Farrell
CEO



Greg Peet
Board Chair



Steve Hnatiuk
Investment
Committee Chair



PORTFOLIO VENTURES

LIFE SCIENCE



CLEAN TECH



CORE TECH



CONSUMER



9 student ventures
7 UBC spinout ventures
3 faculty / staff startups

UBC SEED FUND

PURPOSE

The UBC SEED FUND was established to act as a catalyst for venture creation activity at UBC. It aims to support the process of turning UBC innovations into thriving businesses and drive economic growth within BC and across Canada. The UBC SEED FUND aims to help maximize the impact of UBC's research portfolio for social and economic benefit and to enhance and support the entrepreneurial initiatives of UBC's faculty, staff, students and recent alumni.

BOARD OF DIRECTORS

Greg Peet (Chair) - GrowthPoint Capital Corp.
Todd Farrell - CEO UBC Seed Fund
James Olson - Dean Faculty of Applied Science UBC
Gail Murphy - Vice President Research & Innovation UBC
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Chelsea Thompson - Office of the University Counsel
Steve Hnatiuk - Partner Lighthouse Equity Partners



UBC SEED FUND

COMMUNITY SUPPORT

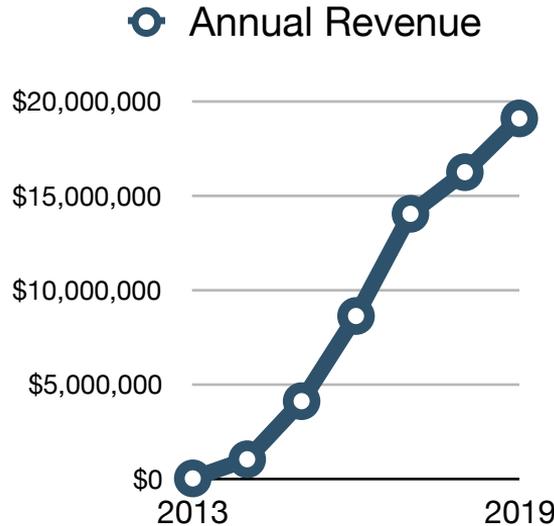
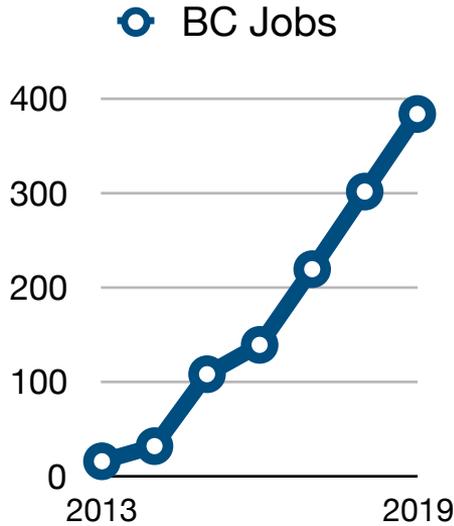
UBC SEED FUND portfolio ventures have benefitted from the support of many entities active in assisting the UBC and BC startup community. We would like to thank the following partners for their involvement and contributions with our ventures over the past year.



UNIVERSITY INDUSTRY LIAISON OFFICE | UILO



BY THE NUMBERS - Cumulative results of our portfolio ventures



> \$70 MILLION

Cumulative lifetime
revenues of our
portfolio ventures



100 Jobs

Added over the last year

94%

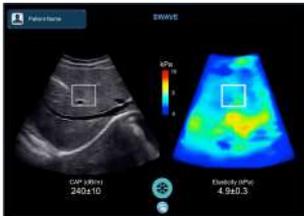
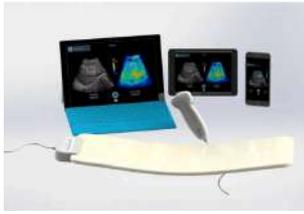
survival rate
of ventures
having received
seed funding

UBC SEED FUND



SONICINCYTES offers a new approach to measuring liver health. Current approaches either require invasive tissue sampling or the use of large and expensive MRI machines. SonicNcytes' answer is a compact, easy to use and non-invasive ultrasonic activator and sensor system. Their low-cost medical device is ideal for use by GPs to routinely monitor a patient's liver for a range of genetic and lifestyle diseases.

SonicNcytes was co-founded by Dr. Tim Sacludean and Dr. Rob Rohling (both professors at UBC) and is led by experience entrepreneur George Aliphtiras.



AVESTEC develops drones that can physically inspect large, and difficult to access, metal storage containers and piping. Their drones have been specifically designed to fly to predetermined spots and physically attach to those locations. Once attached Avestec's drones can conduct a range of tests (e.g. ultrasound, paint samples) that allows certified inspectors to verify the integrity of the target infrastructure without having to personally climb to the test locations. This approach dramatically reduces the risk of injury.

Avestec was co-founded by two recent UBC graduate students; Reza Tavakoli (PhD Materials Engineering) and Pouya Kamalinejad (PhD Electrical Engineering).





BARRELWISE

BARRELWISE offers wineries a new solution for significantly improved control of their wine ageing processes. Aging wine in barrels can produce a premium product but the barrels breathe and requiring routine “topping up” with wine to avoid large air voids developing. However, the process of opening barrels to introduce more wine can also allow in microbes that can spoil the wine. BarrelWise have engineered a system that allows wineries to sample and top up their barrels without breaking the sanitary seal of the barrel.

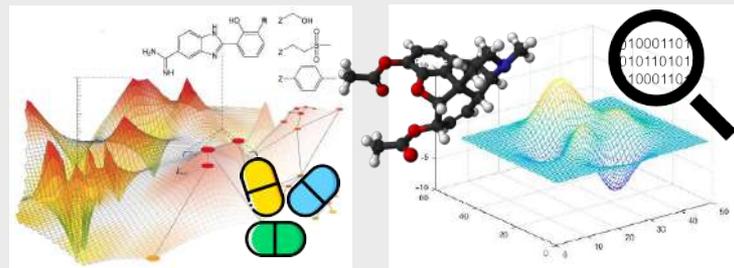
BarrelWise was founded by four recent alumni. Two of the founders are recent MBA graduates (Jason Sparrow and Artem Bocharov) and two are recent PhD Mechanical Engineering graduates (David Sommer and Miayan Yeremi).



VARIATIONAL AI

VARIATIONAL-AI uses advanced computational methods to identify and design valuable small molecule drugs and advanced materials with novel characteristics. The team at Variational AI have developed unique machine learning and artificial intelligence methodologies that can be leveraged to efficiently discover valuable new small molecules, or optimize other molecules previously identified by third parties. Variational AI's key market focus is the pharmaceutical sector but their computational approach has widespread applicability.

The startup was co-founded by recent UBC graduate Zaccary Alperstein (MS Cheminformatics/Bioinformatics) and UBC research assistant and recent alumnus Ali Saberali (PhD Electrical and Chemical Engineering). The venture is lead by experienced entrepreneur Handol Kim.



VENTURE SNAPSHOT



ACUVA



ACUVA TECHNOLOGIES

Acuva was co-founded by Manoj Singh (UBC MBA 2010) and Dr. Fariborz Taghipour, a professor at UBC's Department of Chemical and Biological Engineering, who developed the venture's original intellectual property.

UV light is widely recognized as one of the most effective methods to destroy microbes and pathogens in water. The downside is that UV lamps are expensive, require high maintenance, consume high levels of energy and do not physically scale down for easy use. The genius behind Acuva is the use of much more efficient UV LEDs, which require far less energy and maintenance.

Acuva's early products were targeted at early adopters: boat owners, recreational-vehicle owners and cottagers. As Acuva further refined its solution they were able to reduce its size and cost while still increasing its water purification performance. Acuva now offers low cost UV modules designed to be integrated directly into refrigerators, water fountains, ice machines and kitchen faucets. Acuva is also working on an ultra-low cost product that can be used by off-the-grid communities in the developing world.

Acuva first received seed funding from the UBC SEED FUND in June 2015 to develop a prototype version of the product. Since then Acuva has raised over \$18 million in equity and grant funding and is now growing sales for its commercial products.



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ENCEPTA CORPORATION

In canvassing Canadian Telecom companies for problems needing solutions, Terry Mathews (founder of the Alacrity Foundation) identified a tricky pole auditing challenge and a willing customer for a solution (Telus). With a vision on how a solution might be built the Alacrity Foundation established a new startup and then sourced and assembled a founding team made up of graduating engineering students from UBC and UVIC.

In 2014 the UBC Seed Fund, Wesley Clover and a local angel provided seed capital and support to the company. Encepta's solution to Telus' problem was very well received and they became, and continue to be, a key customer for Encepta.

Encepta continues to grow its customer base and now employees over 70 people and has been expanding the geographic areas in which they operate.



Problem: In order to reduce the proliferation of poles supporting all sources of power and data services (eg, utilities, cable, telco) the CRTC prescribe that current owners of poles must allow others to attach their services if requested. The CRTC do also require that rent is paid to the pole owner. The challenge has been in auditing what services are attached to whose poles and without good data the payment of rent to pole owners hasn't occurred. Encepta provides the quality data that makes the rental market work.

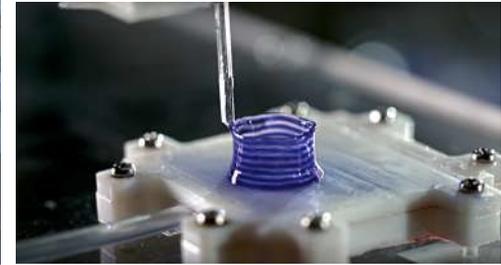
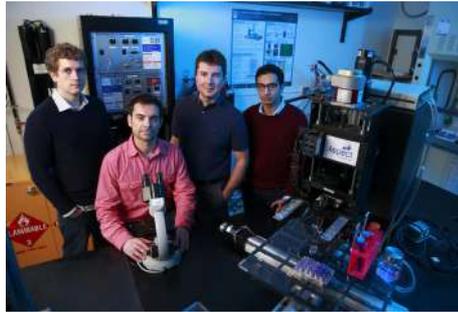


VENTURE SNAPSHOT

ASPECT BIOSYSTEMS

Aspect Biosystems is a University of British Columbia (UBC) spinoff venture that made waves by announcing its ability to use live human cells to create and build living human tissue. It was founded in November 2013 by a group of university researchers who went on to create their own 3D bio-printing technology in which cells are combined and suspended in a liquid form hydrogel to create functional living human tissue models.

The technology was originally developed at the Walus Lab, part of UBC's Faculty of Applied Science. The founders had a vision to develop engineered human tissues that could be used to further narrow down drug candidates prior to clinical trials and thus dramatically reduce the cost of the most expensive step of drug development.



Aspect received their first investment from the UBC SEED FUND in June 2014. Since then the company has successfully raised several rounds of investment and grant funding totalling in excess of \$40 million. Aspect BioSystems is now widely recognized as being the market leaders in 3D bio-printing and are collaborating with a range of premiere tissue engineering research groups and large biotechnology companies. The vision also continues to expand with the goal of being able to print tissues and organs that are implantable into humans.



**Human Tissues
on Demand™**

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VENTURE SNAPSHOT



TERRAMERA TECHNOLOGIES

Whilst pursuing his law degree at UBC, Karn Manhas (who also holds a biology undergraduate degree from McGill University) turned his thoughts to how to control a likely bedbug infestation that the Winter Olympics would bring to Vancouver. Karn's scientific background led him to consider naturally occurring chemicals as potential candidates for eradicating those bedbugs. Karn soon co-founded Terramera with Annett Rozek (an experience microbiologist and UBC alumnus) and they set off on a pursuit to identify a worthy bio-pesticide.

Neem is a tree species native to India and well known for it's range of complex chemicals. Terramera isolated a set of chemicals from the tree and found that the chemical cocktail was highly toxic to bedbugs in both their adult and larvae stage due to an unexpected and unique ability to penetrate thru difficult barriers.

Today, Terramera has refined and enhanced their bio-pesticide's ability to penetrate into target pests and have expanded focus beyond the bedbug market. Their products are now being used in test batches in many agricultural markets.



The company has caught the eye of many large AgTech investors and Terramera has now gone on to raise in excess of \$90 million in investment and grants.



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PORTFOLIO MILESTONES, AWARDS from the past year



Awarded

2019 Global
New Product
Innovation



Encepta 

Awarded

VIATEC Team
of the Year
2019



Terramera raises

\$60 million

to reduce synthetic
chemicals in
agriculture by 80%

Aspect Biosystems raises

\$26 million

to enable regenerative
medicine thru the
advanced 3D fabrication
of tissues



Acuva raises

\$5.4 million

to make access to safe
drinking water simple
and affordable

Stoko raises

\$2.6 million

to commercialize their
high performance yet
low profile knee brace

Nanozen raises

\$1.2 million

to monitor in real time
hazardous airborne
particles



Terramera wins \$1 million
first prize in agriculture
innovation competition.

Acuva receives \$1 million in funding
from GenomeBC. This is the third UBC
Seed Fund venture to receive funding
from GenomeBC for an aggregate funding
total of \$2.75 million.

UBC SEED FUND

UBC SEED FUND Ventures - follow on funding success

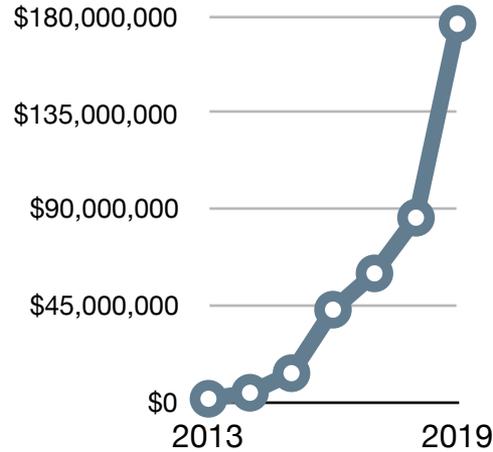
The ventures that have received seed funding from the fund have demonstrated success in attracting additional later stage investment capital.

On average, for each \$1 in seed funding invested by the UBC Seed Fund our ventures have subsequently raised over \$70 in additional investment capital.

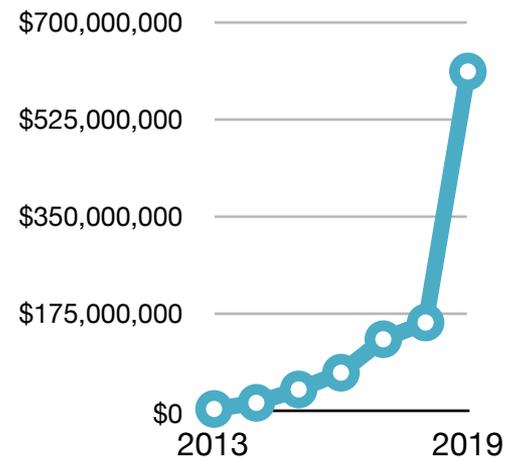
1 : 70

Leverage ratio of UBC Seed Fund dollars to co-investment dollars

○ Investment Capital Raised



○ Combined Enterprise Value



> \$90 M

Investment raised by portfolio ventures over the past year

> \$610 M

combined enterprise value of portfolio ventures

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