



GLOBAL
INNOVATION

FIRST FLIGHT VENTURE CENTER

HIGH SCIENCE, HIGH IMPACT

IMPACT REPORT 2022

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Krista Covey, President, & Emil Runge, Program Director, presenting at Carteret Community College and NC State University Center for Marine Science and Technology



First Flight Venture Center team collaborating at East Carolina University



WheelsUp Accelerator Demo Day celebration dinner

Since 1991, First Flight Venture Center™ has supported the development and growth of high science, high impact entrepreneurial companies by providing the tailored resources, guidance, connections, and support required for sustained commercial success.



MESSAGE FROM THE PRESIDENT



This year and every year, First Flight Venture Center (First Flight) focused our collaborative work to serve Innovators and Entrepreneurs who are out to change the world. The work in service of startups is wonderful, challenging, takes a strong team and requires committed partners to execute well on a big vision with great results. We are thrilled to share just a few of our highlights which are listed below and throughout this report.

First Flight partnered with Forward Cities to co-host the Startup Champions Network Spring Summit. Ecosystem builders across 56 cities in 27 states and 2 countries were welcomed to North Carolina to explore the Triangle entrepreneurial ecosystem and discuss ways to build equity across the global innovation landscape.

First Flight was privileged to host The International Business Innovation Association (InBIA) Fall e.Builders Forum attended by entrepreneur support organizations from across the nation to witness a good example of what collaboration looks like in North Carolina across industry sectors.

First Flight also welcomed several honored guests this year including the White House Office of Science and Technology Policy, the U.S Department of Health and Human Services, Congressman David Price (virtually), Small Business Administration (SBA) Regional Administrator Allen Thomas, and the Biomedical Advanced Research and Development Authority (BARDA) to discuss First Flight's unique programming offered across the entire state of North Carolina.

First Flight's Small Business Administration Federal and State Technology (FAST) program was of particular interest. We were the FAST awardee for North Carolina for the 5th consecutive year. FAST, prioritizes efforts to increase non-dilutive funding through SBIR/STTR grants for underrepresented groups in North Carolina but also to strengthen the startup business so they can thrive and be sustained on their journey to commercialization.

Another 2022 highlight was the launch of the Global WheelsUP Accelerator program which helped to advance 10 companies closer toward commercialization. This initial cohort was focused on Drug Development and Advanced Biomanufacturing and was supported by BARDA.

Other exciting news: in addition to hosting an office for the Defence Technology Transition Office (DEFT-ECH) which is a part of the North Carolina Military Business Center (NCMBC) at First Flight, we are so excited to announce that we now host an office for AFWERX, which is an innovation arm of the United States Department of Air Force. We are honored to host these fantastic partners which enable us to serve even more innovators in the defense innovation space.

We don't get to live out our mission without gratitude and humility knowing that so many individuals and organizations have a hand in our success. Thank you for your support.

Onward and upward,
Krista Covey,
President, First Flight Venture Center
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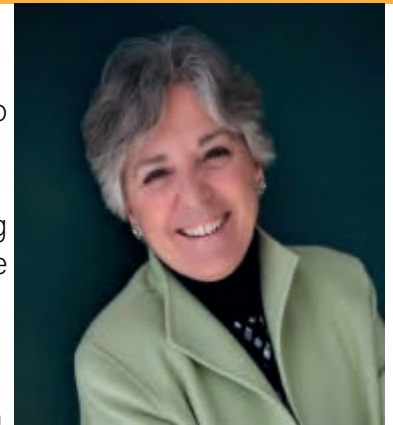
A handwritten signature in black ink that reads "Krista Covey". The signature is fluid and cursive, with a large, sweeping flourish at the end.

MESSAGE FROM THE BOARD CHAIR

Winston Churchill wisely advised, "However beautiful the strategy, you should occasionally look at the results." So, as we start 2023, I want to take a moment to reflect on First Flight's strategy and 2022 results.

Our strategy: Work toward our Vision to be a global center of excellence empowering science innovators to impact positive change. Serve our Mission to propel early-stage science companies to commercialization by providing them comprehensive resources to transform their ideas to successes.

After reflection it is clear the results are outstanding! First Flight will stay the course! While some of our services are primarily for our resident members, most programs are open to all entrepreneurs. In 2022 First Flight held or participated in more than 21 programs across North Carolina, from Wilmington to Cullowhee. Our physical, virtual and blended events were attended by more than 1800 individual, both domestic and international. NC participants were not only from the Triangle region but far beyond including Cabarrus, Catawba, Brunswick, Forsyth, and Alamance counties. Not only did First Flight propel these entrepreneurs along their journey but this year we awarded money to 10 companies in our WheelsUP accelerator. The grand prize winner received \$55,000. Two accelerator companies presented at BARDA Industry Day in Washington DC.



2022 High Flyer Luncheon toast to Fred Hutchison

A new and bold effort expanded in 2022, First Flight is bringing our NC start-ups to the military. AFWERX (Air Force work project) and DEFTECH now maintain offices at First Flight as we share North Carolina innovative solutions with our armed forces.. And while I could go on with more results, I believe Sir Winston would agree: After reviewing our results we continue to find our strategy beautiful.

My goal is to help First Flight grow stronger to better serve early-stage science companies. When these companies succeed our society advances, our world becomes better, and our state becomes stronger. I invite you to join us on this grand adventure.

Mary U. Musacchia
Board Chair, First Flight Venture Center

A handwritten signature in black ink that reads "Mary U. Musacchia". The signature is fluid and cursive, written on a light-colored background.

RUNWAY TO SUCCESS

Programs designed to meet companies where they are in the business lifecycle



31⁺ YEARS
IN OPERATION SINCE 1991

\$12 BILLION
IN ECONOMIC IMPACT
FROM RESIDENT COMPANIES

**400⁺ GRADUATE
COMPANIES**



First Flight hosts the NC Defense Technology Transition Office (DEFTECH) with special guest LTG (Ret) Ben Hodges to discuss "The Impact of Technology on Current and Future Warfare".

NEW IN 2022

AFWERX

FFVC hosts an office for the North Carolina Military Business Center and is a member of NC-COMP. We are so excited to announce we now host an office for AFWERX! AFWERX is a United States Air Force program with the goal of fostering a culture of innovation within the service. AFWERX's mission is to accelerate agile and affordable capability transitions by teaming innovative technology developers with Airman and Guardian talent.



North Carolina
Center for Optimizing
Military Performance

WE HOSTED...

- Research Triangle Park Rotary - RTP Capital
- International Business Innovation Association - Startup Champions Network - SBA Regional Administrator Allen Thomas - Congressman David Price - Triangle Biotech Tuesday -



RTP Capital
ASSOCIATES, INC.



STARTUP
CHAMPIONS
NETWORK



SBA Regional Administrator, Allen Thomas, visiting with First Flight Board Member, Jim Nichols, and Hangar6 Director, Dr. Mark Roberson, at Hangar6.



First Flight is pleased to announce support from the **North Carolina Department of Commerce** to support 4 additional educational sessions across the state with our partners at DEFTECH to help increase awareness and educate even more founders on SBIR/STTR opportunities and the One North Carolina Small Business Program.

RESIDENT COMPANY SPOTLIGHT



AthemBio is a privately held company based in RTP, NC, founded by CEO Dr. Sunil Mehta. "We invent breakthrough technologies and transform them into solutions to solve major bioprocessing challenges. AthemBio has worked with global customers, seen challenges first hand and learned from past mistakes and successes. We provide simple, scalable, robust, and automated solutions." AthemBio has 3 technologies, CORIG, machroS, and cRUSH. AthemBio was also selected to participate in the WheelsUP Health Security Accelerator.

Sunil Mehta, CEO and founder of AthemBio, presenting at the WheelsUP Health Security Accelerator Demo Day.



Verinetics has developed a ground-breaking platform for medication dispensing, focused on "Better Control for Controlled Substances", and on increasing access to life-saving therapy to mitigate the ongoing opioid crisis. Jim Mclean is the Chief Technology Officer located in their offices at First Flight Venture Center.



Jim Mclean discussing Verinetics technology with DEFTECH's Senior Manager Robert Burton at the High Flyer Award Luncheon.



NCX is a US-based company producing X-ray tubes using carbon nanotubes to produce significantly clearer 3D X-ray images compared to traditional x-rays. NCX is focused on both healthcare and security applications.



6. John Hand and Derek Spronk presenting NCX's technology at the High Flyer Award Luncheon.

GRADUATE COMPANY SPOTLIGHT



“Newborn screening platforms powered by digital microfluidics”



Rich West, CEO of Baebies, accepting the annual High Flyer Award of 2022

Baebies spent part of their early journey at First Flight in the incubator program. The Baebies company is delivering early disease detection and comprehensive diagnostics through screening and testing platforms powered by digital microfluidics.

“Everything your lab needs for screening in one small workstation.”



Their mission is to save lives and make lives better for all by bringing new technologies, new tests, and new hope to children, parents and healthcare professionals worldwide. Because of the lifesaving work, the economic impact and the innovation that founder and CEO Rich West and the team at Baebies represent, we were honored to give them the High Flyer award in 2022.

Richard West : With over 20 years of life science CEO experience, Richard leads the strategic direction for Baebies. Previously, Richard and Vamsee Pamula led Advanced Liquid Logic, a Duke spinout that developed lab-on-a-chip technology and products for the research tools and diagnostic markets. Advanced Liquid Logic was sold to Illumina, Inc. for \$96M. Prior to Advanced Liquid Logic, Richard was Founder and CEO of TriVirix, a venture-funded medical equipment contract manufacturer that he and his team grew to more than 500 employees. He also spent 15 years in the aerospace industry in program, sales, marketing and engineering management, including four years as a commissioned officer in the US Air Force. Richard is currently on the board and executive committee of NCBI and serves on a number of private company boards. He has an engineering degree from Duke University, an MBA from the University of West Florida and completed all requirements except dissertation for a PhD in management at the Peter F. Drucker Graduate School of Management.

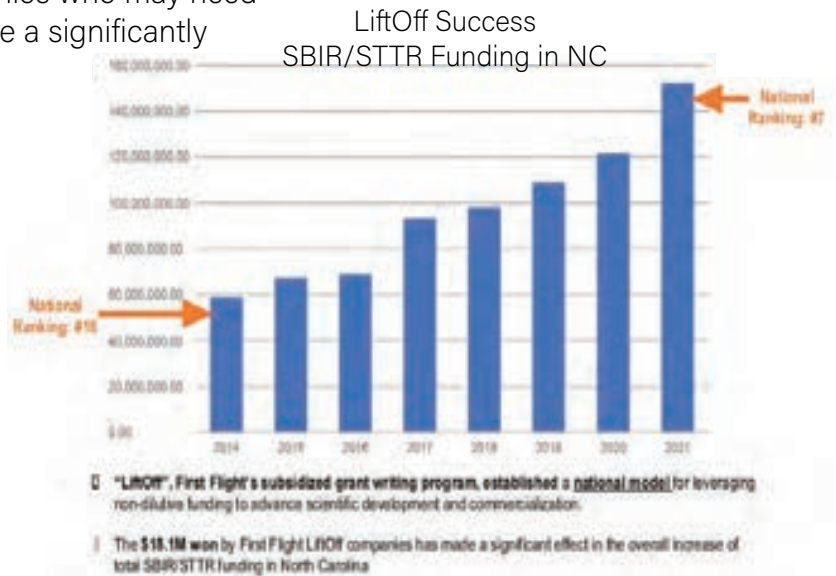
LIFT OFF



In 2022, First Flight and grant-writing partner Eva Garland Consulting, continued to meet a critical need of entrepreneurs with science focused companies to secure early-stage non-dilutive funding, and funding that does not require them to give away equity in their company. Startup companies, particularly companies who may need regulatory approval and years of clinical trials have a significantly longer "runway" to commercialization.

Early-stage companies with limited resources may not have in-house technical writing capacity to obtain a Small Business Innovation Research (SBIR) or a Small Business Technology Transfer (STTR) grant. The LiftOff program fills that gap with subsidized professional grant writing services to not only create a strategic funding plan to map out their possible funding sources across federal agencies, but also to submit a high caliber grant submission which increases the chance to win an award.

PROGRAM SPOTLIGHT



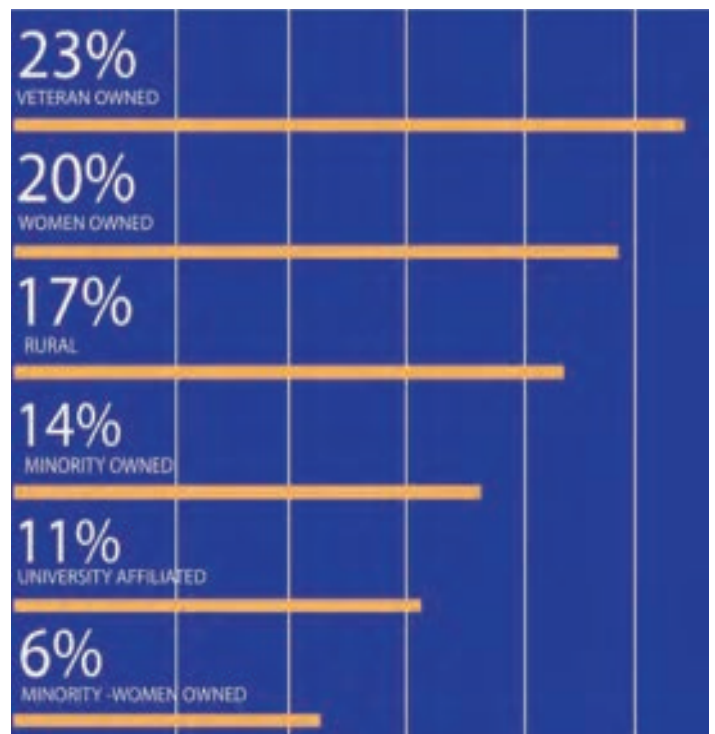
FEDERAL AND STATE TECHNOLOGY (FAST)

Over **700** Attendees at 2022 FAST events

Our FAST program focuses on:

- Raising awareness about how investors evaluate and select investments, providing insights to start-ups on what type of funding to seek, uses of various funding tools, and more.
- Expanding the depth of SBIR/STTR education programs and grant writing support offered.
- Offering business mentoring and coaching to strengthen the business value of the company.
- Raising awareness and increasing opportunities for Department of Defense (DoD) funding.
- Focusing on women-owned companies in early ideation stages to help determine the business value of their idea, and help develop pitch decks for investors/customers/partners.

FAST Bootcamp Demographics



PROGRAM SPOTLIGHT



FEDERAL AND STATE TECHNOLOGY (FAST)

New Elements for the 2021-2022 FAST Program

- "Propeller" program cohort for Women-Owned Companies
- "How to Get Funded by the Department of Defense" Workshop
- Early-Stage Capital Panel – Sources and Challenges: Sources of funding are critical to a startup's ability to progress through different stages of research, development and commercialization. This panel of angel, non-dilutive funding and venture capital funders covered a range of revenue/grant options related to all stages of a company's development; the advantages and consequences of each and factors that impact the best choices.
- National Science Foundation and National Institutes of Health Program Manager workshops: Content included mistakes commonly made in grant submissions, "do's and don'ts" from their perspective.



FAST Bootcamp Participants, April 2022.



Laura Widman, founder of Teen Health Research, presents at the FAST Bootcamp.

SBA GROWTH ACCELERATOR AWARD

Experience tells us that while STEM R&D entrepreneurs face a daunting road to commercialization, women entrepreneurs experience unique barriers which have been exacerbated by the recent pandemic. As an indication, in North Carolina, only 5% of biotech firms are led by women. First Flight has 31 years of proven service which benefits science focused startups across North Carolina. We served 10 female founders through Propeller cohorts and 13 female founders participated in our Test Flight pitch practices.

SBA Growth Accelerator Fund Competition (GAFC) Award Winner: 2015, 2016, 2017, 2019, 2021

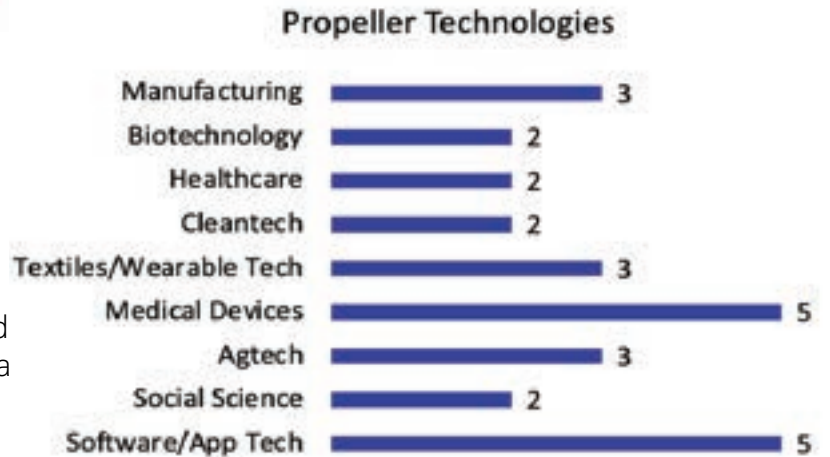


PROGRAM SPOTLIGHT



Propeller is an entrepreneurial design thinking program which helps entrepreneurs determine whether there is a sufficient value to pursue a product or service.

Propeller helps entrepreneurs identify potential markets, develop a path to market strategy, and learn how to communicate the value of the idea to early stakeholders and adopters.



Since the launch of the Propeller program in 2021, First Flight has hosted seven different cohorts. In 2022, four cohorts with a total of 22 graduates went through Propeller. Three of these cohorts were specifically dedicated to female founders, and one was centered around defense textiles and wearables. In December 2022, First Flight launched its 8th cohort in collaboration with the Engineering Department of Western Carolina University in Cullowhee County, as well as a 9th cohort focusing on manufacturing.



Defense Textiles and Wearables Demo Day. First Flight partnered with North Carolina State University Industry Expansion Solutions to make this cohort possible

>10 NC Counties served including Cabarrus, Buncombe, Brunswick, Forsyth, and Alamance

27 Companies served in 2022

18 Women-Owned Companies Served

11 Minority-Owned Companies Served

PROGRAM SPOTLIGHT

NAVIGATORS

At First Flight we pair one of our experienced Navigators with a senior executive in your organization to serve as a trusted advisor. First Flight Navigators are seasoned executives, entrepreneurs, and scientists with rich business experience. They have worked hard, achieved success, and now want to give back to the entrepreneurial community.

35 Navigators
1,252 Hours Served
in 2022

ITINERARIES First Flight's Science Talk of the Month



Sam Fox trying out "virtual reality" Itineraries



Ivan Francis, CEO and founder of ARGONETA, presenting at the August 2022 "virtual reality" Itineraries event.

FOUNDERS ROUNDTABLE

36 cumulative
companies
served

Founders Roundtable, where startup founders spend 90 minutes working to solve urgent and pressing business issues with First Flight peers and a trained facilitator in a confidential setting.

PROGRAM SPOTLIGHT

"WheelsUP was fantastic for helping us build relevant BARDA contacts. It would be great to build similar relationships with DoD and NIH. The BARDA contacts are extremely useful!"
 - Dennis Mak, founder and CEO of AVECRIS

WheelsUP ACCELERATOR Fast Facts

- 40% Female Owned
- 50% Minority Owned

Focus Area

- 5 Advanced Biomanufacturing
- 5 Drug Discovery Platform

Meet the 10 Companies:

- AthemBio
- Avecris
- Jurata Thin Film
- Phase
- PrecNA LLC
- QATCH
- QUANTISCOPE
- Regenova
- Sensible Biotechnologies
- Akanocure Pharmaceuticals, Inc.

30th Anniversary FIRST FLIGHT

First Flight launched the inaugural WheelsUP accelerator program in 2022. This program is a platform that can be tailored by industry to accelerate the ability of entrepreneurs to scale disruptive innovations, technologies, and solutions. WheelsUP will increase the quality and quantity of viable companies and lifesaving technologies and will catalyze investor interest in these sectors.

The cohort met weekly for the core education sessions that focused on technical instruction and business education. Additional time was spent with mentors, coaches, potential customers, and investors. There were also funding opportunities, with \$100K in total prize money from BARDA being distributed to the first cohort.

Jurata Thin Film was awarded the \$50K prize and AVECRIS received the runner-up position. Both companies were awarded the opportunity to present at BARDA Industry Day.

WheelsUP Global Reach



Winner of the WheelsUP cohort, Jurata Thin Film's Senior Director Megan Livingston and Director Christopher Pavlos

PROGRAM SPOTLIGHT

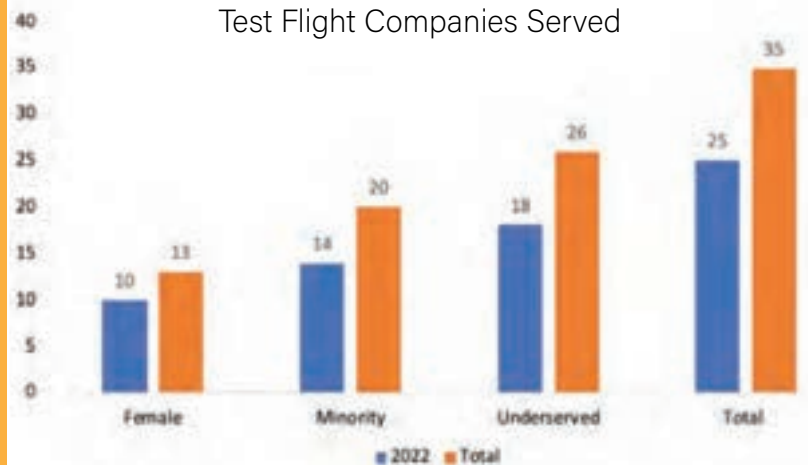
First Flight has been selected by the US Dept. of Health and Human Services for the DRIVE (Division of Research, Innovation, and Ventures) Initiative. Part of the BARDA (Biomedical Advanced Research and Development Authority) program, DRIVE is working to identify and fund companies who solve priority threats.



First Flight is honored to have been selected by the U.S. Department of Health and Human Services as one of 13 national innovation hubs tasked with finding solutions to protect the world from health security threats. This DRIVE initiative is part of BARDA and is designed to identify and fund companies who solve priority threats to health security.

The first Wheels UP accelerator cohort collaborated with BARDA to help 10 companies scale disruptive biotechnology and health security solutions. There was a total of \$100K in prize money. The initial cohort was offered virtually to accommodate a global pool of participants.

Other highlights of 2022 include First Flight, in collaboration from other DRIVE innovation hubs, leading a national effort to create a "Bench to BARDA" Panel Series that focused on providing guidance and insight into how innovators can take their solution from benchtop to BARDA.



Test Flight acts as pitch practice for companies in the First Flight ecosystem. On the first Tuesday of each month, we invite an audience to observe pitches from two companies. The audience includes our Navigators, angel investors, non-dilutive funding groups, customers, and other relevant reviewers to ensure the companies get meaningful, impactful feedback so their pitches continue to get better!

May 2022 Test Flight



Hortense Dodo (on screen), Founder of IngateyGen LLC. IngateyGen is delivering innovative, allergen-free peanuts with improved safety and nutritional value that offer enhanced health and wellness benefits for consumers by partnering with the food value chain to deliver quality products to market.

Heidi Kay, Founder of Jericho Sciences, is developing novel antiviral therapeutics and corresponding personalized diagnostic assays which specifically address the limitations of current combination antiretroviral therapy in the clinical management of HIV-1 infection.

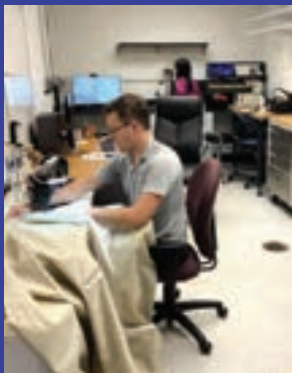


FFVC was delighted to welcome Dr. Mark W. Roberson as the Director of Hangar6. Dr. Roberson said, "I am excited to support entrepreneurs and startups in high science, high impact, high technology prototyping through FFVC." Hangar6 included services in Technical And Business Assistance (TABAs) and subcontracting contributions for members working on Small Business Innovative Research (SBIR). Also, thanks to an award from the U.S. Economic Development Administration (EDA) Hangar6 was able to integrate into the FFVC main building, allowing for more seamless interactions between Hangar6 members and the other FFVC team members. Third, Hangar6 has successfully begun 3D printing of metal structures with agricultural, energy, medical, and drone market applications.

HANGAR6 - Success Story

One of the products made with Hangar6 equipment and workspace is the EarthOptics' Automatic Digital Cone Penetrometer (ADCP) by Mark DeSoto and Andrew Walston. It measures soil compaction from a GPS-calibrated vehicle, which is later used to validate the soil models of their data maps. They were recently asked to make two more of these machines.

The ADCP rides about 12" above the ground for clearance while driving around. It is used to measure soil compaction by pushing a cone shaped tip on a rod into the ground while recording the force resisting the cone's penetration vs distance. There is a 1000psi software limit for the cone as a safety measure which if it hits a rock or something extremely hard, it will retract it back to the starting position.



Sam Fox sewing the latest generation of patient repositioning bed.

Dr. Sofie Permana explaining how to use a 3D scanner for biomechanical design purposes.



Andrew Walston from EarthOptics using a milling machine to make another penetrometer.

ANNUAL HIGH FLYER LUNCHEON

First Flight celebrated 31 years at the forefront of scientific innovation in NC by hosting our 2nd annual awards luncheon to honor companies that have contributed to our community, scientific field, and entrepreneurship. This year we honored Rich West and the Baebies team alongside Fred Hutchison as this year's First Flight High Flyers.



Krista Covey, Fred Hutchison, and Nancy Hutchison celebrating at the High Flyer Luncheon.

Fred Hutchison

At First Flight's Highflyer Award Luncheon, Fred Hutchison was recognized as an outstanding member of the First Flight Family receiving the 2022 Champagne Toast! Fred was a long-standing member of the First Flight Board of Directors and is the leader in the entrepreneurial start-up ecosystem in the RTP region. "First Flight will be forever grateful to Fred for his commitment to our organization and NC will be forever grateful to Fred for his leadership making this region one of the best places for early-stage science companies to begin their long road." Said Mary Musacchia, First Flight board chair.



Mary U. Musacchia honoring Fred Hutchison with a Champagne Toast.



Isaac King, Rachel Menechella, and Mark Roberson presenting the Hangar6 Prototyping Showcase at the 2022 High Flyer Luncheon



170
Attendees



8 First Flight companies attended the luncheon to display their companies including NALA Membranes (Kim Chin and Sue Mecham featured in the left picture), Verinetics, Avex Motion, NCX, Seneca Devices, Breezi, AthemBio, and Anuma Aerospace.

In addition to our amazing companies, several sponsors tables had the opportunity to interact with attendees including RTP Foundation, MEP, Hutchison Law, Financial Directions, NC-COMP, DEFTECH, NCMBC, AFWERX, and NSIN.

CHAMPIONS OF INNOVATION

The Wright Society

\$100,000 and beyond

- Biomedical Advanced Research Development Authority (BARDA)
- Eva Garland Consulting
- NCIDEA
- U.S. Economic Development Administration
Regional Innovation Strategies
- U.S. Small Business Administration

Captain's Circle

\$25,000 - 99,999

- NCSU's Office of Research Commercialization
- Protolabs
- iOrbit
- North Carolina Defense Industry Diversification Initiative
- Mary U. Musacchia

Aviator's Club

\$10,000 - 24,999

- Duke Innovation and Entrepreneurship
- Flad Architects
- Alexandria Real Estate

The Flight Crew

Under \$1,000

- The Launch Place
- Peter Ginsberg
- Ken Tindall
- RTP Capital
- Cat Lineberry
- Dan O'Korn
- Jim Nichols

Co-Pilot's of Excellence

\$1,000 - 9,999

- Baebies
- Regency Centers
- Redbud Labs
- O'Brien Atkins Associates
- NK Patent Law
- Morningstar Law Group
- Insight Strategies
- Hutchison PLLC
- Breezi.io
- CSC Leasing
- Caterpillar
- Ecliptic Enterprises
- Financial Directions
- ECSI Fibrotools
- NC Biosciences Organization
- North Carolina Biotechnology Center
- Paul Munana
- Mary Beth Thomas
- Jean Davis
- East Carolina University
- Sntesis
- ShopBot Tools
- Seneca Devices
- Powered Research
- Plantd Materials
- Research Triangle Park Foundation
- JWM Consulting, LLC

THANK YOU to all of
our amazing sponsors!

THE FIRST FLIGHT TEAM



- Krista Covey - President
- Emil Runge - Director of Programs
- Mark Roberson, Ph.D. - Hangar6 Director
- Lydia Bjorklund - Programs Manager
- Maria Hartman - Administrative Assistant
- David Blackmond - Marketing Intern
- Isaac King - Hangar6 Intern
- Rachel Menechella - Hangar6 Intern
- Raiya Patel - Hangar6 Intern
- Sofie Permana, Ph.D. - Hangar6 Engineer
- James Wagner - Accountant

THE BOARD OF DIRECTORS



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Mary U. Musacchia
PLLC



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Foundation Fighting
Blindness



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O'Brien Atkins
Associates



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