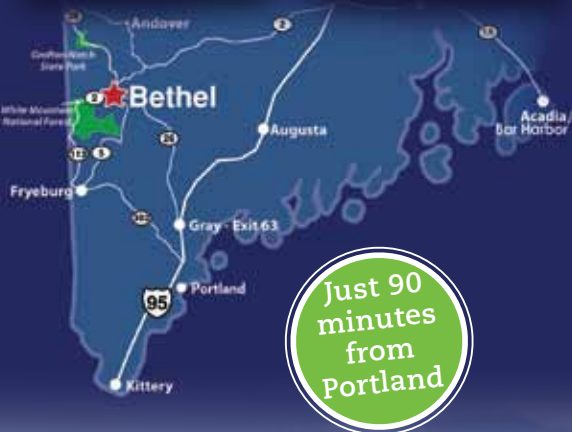


Maine's premier
mountain adventure
destination . . .

Bethel



- Two championship golf courses
- Endless miles of hiking for all abilities
- River & lake fishing, boating, canoeing & kayaking
- Diverse cuisine offered in 30+ restaurants
- Pet friendly paradise!
- Breathtaking scenic driving loops and wildlife tours
- Abundant road and mountain biking
- National Historic District & history museum
- Fantastic events all summer and fall



**EUREKA
MOMENT:**
Spherical aquaculture

Ocean Farm Technologies makes **Aquapod** fish farms up to 20 meters in diameter. They keep out predators; function well offshore; and cheat the harshest of storms by **completely submerging**. These game-changing spheres are in use today in South Korea, Indonesia, Panama, Mexico, and Hawaii. This brilliant stroke has been covered everywhere from *Forbes* to *National Geographic* to *Al Jazeera*.

Tomorrowland

Here on the Atlantic Rim, we're not afraid to do things a little differently.

BY KAREN HOFREITER

Close your eyes and imagine a new universe. In this universe, you can see and hear the future; robots fight fires and violent crime; musical instruments are not what they seem; and farmed fish are just as delicious as wild-caught.

Now open your eyes. Take a look around. If you are in Maine, you already live in this topsy-turvy universe. Wait, you think, *we've got blue lobsters and produce 90 percent of the country's toothpick supply, but our own*

Silicon Valley?

Yup. In fact, Portland was listed in Techie.com's 2013 "Ten Most Unexpected Cities for High-Tech Innovation" and placed among the top five in Sparefoot's "Under-the-radar Tech Hubs" in 2014. The state is also dedicated to continuing this trend, with organizations like the Maine Technology Institute pouring over \$100 million of funding into over 1,300 technological projects since 2000.

Innovation takes perseverance, creativity, endurance, independence, and willingness to fail many times before finding success—all characteristics of the Maine way of life. (Just think of how many creative homemade solutions Mainers have devised to deal with snow alone.) The best part of Maine's innovation sector is its variety. From floating fish farms to robotic vehicles to immersible alternate worlds, here is a cross-section of the most forward-facing technologies in the state.

SEAL COVE AUTO MUSEUM

Celebrating the cultural and industrial innovations of the earliest automobiles.

Open daily 10am - 5pm
May 1 - October 31



Motoring into the
**Twentieth
Century**



1414 Tremont Rd, Seal Cove, ME 04674 207.244.9242 www.sealcoveautomuseum.org



CONROY-TULLY CRAWFORD

FUNERAL HOME & CREMATION SERVICES

Greater Portland's Preferred Funeral Homes

Committed to providing valuable and personalized burial, cremation, and prearrangement services.

773-6511 • ctcrawford.com

172 State Street, Portland • 1024 Broadway, South Portland



PORTLAND, MAINE

- NEW ENGLAND'S PREMIER SEAFOOD MARKET
 - GIFT CARDS FOR GIFT GIVING
 - PARTY PLATTERS AVAILABLE
- WE PACK TO TRAVEL & SHIP NATIONWIDE
- WHOLESALE DELIVERY TO THE FINEST RESTAURANT AND MARKETS

(207) 775-0251 or (800) 370-1790

9 Custom House Wharf • Portland, Maine 04101

Mon-Sat 8:30-5:30 • Sun 9:00-4:00

www.harborfish.com



OCEAN FARM TECHNOLOGIES

Taking high-tech to the open seas

It may not be too long before the fruits of Maine ingenuity arrive on your dinner plate. Morrill-based Ocean Farm Technologies (OFT) has found a more sustainable way to produce a tastier fish with the Aquapod, a patented containment system for marine aquaculture—or, in other words, a giant floating fish farm.

Stephen Page, CEO, created the Aquapod in 2005 as an answer to what he saw as huge problems with the conventional fish-farming industry. "Marine aquaculture is limited by its location in shallow inland waters. Conflicts arise all the time—mostly the sharing of resource space with recreational vehicles, private property, fishing boats, et cetera. The solution for expansion and sustainability of aquaculture is moving it out to the open ocean. My goal was to design platforms robust enough to survive the open ocean," says Page. The geodesic domes—which can range in size from eight to 20 meters in diameter—are constructed of tri-



**EUREKA
MOMENT:**
Radical monohull design

Comanche, a 100-foot rocketship "super maxi" built at Hodgdon Yachts competes in the 2015 Rolex Sydney-Hobart ocean race. (She took second place.)

angular net panels. The panels can be manipulated as needed for daily operations, including feeding, cleaning, and harvesting. The Aquapod is specially designed to keep out predators and operate fully submerged during foul weather.

Additional advantages of the Aquapod compared to conventional fish farming include less pollution and better fish health. The life-cycle cost of an Aquapod can range from \$30,000 to \$200,000. "Sounds like a lot, but a fish farm can make a half-million dollars just in one harvest," says Page.

Aquapods are currently bobbing in locations across the globe, including South Korea, Indonesia, Panama, Hawaii, and Mexico, where OFT is developing advanced automation systems. The focus is on automating operational activities such as feeding and cleaning. "Our goal is to reduce the need for human intervention (divers) as much as possible for reasons of both safety and costs. We are also taking steps to develop and implement underwater cameras and

robotic devices. The idea is that I can sit here in Maine, monitoring what is going on in Mexico and operating the system remotely."

When asked about the Maine location, Page cites a number of advantages, including its pool of talented people skilled in aquaculture. "What I also appreciate about doing business in Maine is the people who come and work for me—they are the incredibly productive workers and great problem-solvers." Maine has yet to move into open ocean aquaculture. "It has been disappointing. But within five years we will have a robust turnkey platform and will be able to demonstrate the economic efficiency. That's what everyone wants to see."

And taste, of course.

HODGDON YACHTS
Combining tradition with technology
One wouldn't expect a 200-year-old, five-generation family company to be a high-tech

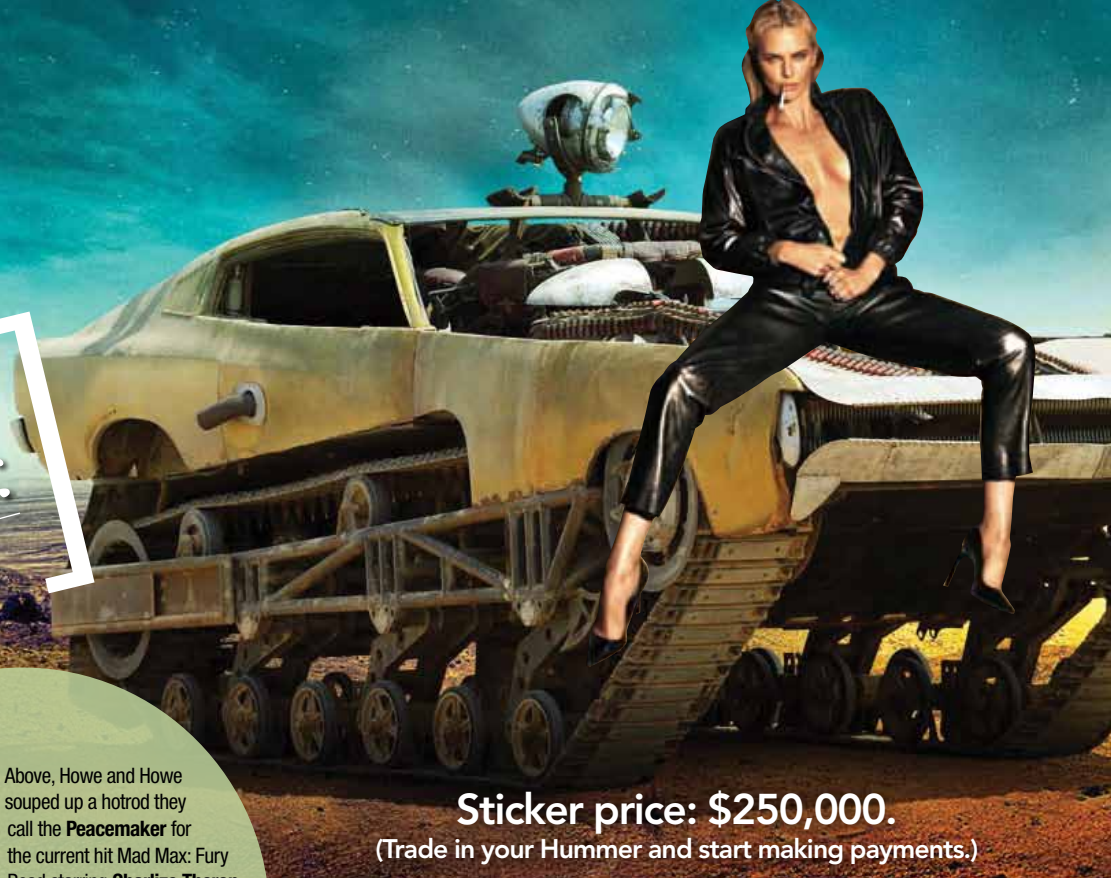
"This boat isn't for around the buoys. We want to tick off every major race."—Comanche's skipper Ken Read

leader in its industry. And yet, that is exactly what Hodgdon Yachts of East Boothbay has worked hard to become. "Even traditional technology enjoys a rich and storied history in Maine, given the boat-building industry. Some builders choose to stick with the traditional. We are not one of those companies," says Ed Roberts, director of sales

and marketing.

Hodgdon has been making boats since 1816 and enjoys a worldwide reputation that it has achieved, in part, by being an early adopter of cutting-edge technologies in boat design and materials (e.g., pre-preg carbon fiber, which is typically used in advanced aerospace aviation applications).

In 2008, Hodgdon made headlines when the U.S. Navy decided to test the 83-foot Mako. Mako was a joint program with the University of Maine. The idea was to build a boat similar to a Navy boat but with com-



EUREKA MOMENT:
Floating Radio



Above, Howe and Howe souped up a hotrod they call the **Peacemaker** for the current hit *Mad Max: Fury Road* starring **Charlize Theron**. At left, the **DemerBox**, a rugged, remote-controlled, waterproof boombox. "We have frozen it in ice, **buried it in snow**. We once dropped it...30 feet...The music never stopped playing."

Sticker price: \$250,000.
(Trade in your Hummer and start making payments.)

"Ripsaw might just be the vehicle to get you through the Apocalypse."

— Andrew Hard, *Digital Trends*

posites instead of aluminium and then compare the shock mitigation. The aluminium boats used by SEALs and Special Ops are hard on the crew and can present safety issues, yet the Navy has been reluctant to consider other materials. "Our purpose was to demonstrate the usefulness of composites," says Roberts. Despite the excitement around the Mako, "defense is not a growing part of [Hodgdon]. Mako is certainly part of our story, but our focus going forward is pleasure crafts—racing, performance cruising, and heirloom vessels."

Enter *Comanche*, Hodgdon's most recent technological wonder. This racing craft was conceived by Jim Clark (co-founder of Netscape) with the goal of building the fastest monohull on Earth. *Comanche* was built from pre-preg carbon fiber using a specific method requiring a 120-foot oven, the largest marine oven in the U.S. "Only six yards in the world are capable of doing a boat like the *Comanche* because of the required infrastructure, ability to apply the technology, and employee skills."

Even if super yachts are perhaps a bit out of the price range of most Mainers (the impressive quote is "\$1 million a meter"), there are benefits to having such an industry located in the state. "There is a saturation of jobs in the industry and an increasing need for skilled people. Maine should be more aware of the potential economic benefits of visiting super yachts."

Economics aside, Hodgdon's creations are a sight to behold.

DEMERBOX
Not your parents' boombox

"We want to create a party for people no matter where they are or what they are doing," says James Demer, co-founder of Portland-based DemerBox. Dubbed the "Tonka Truck" of boomboxes, the DemerBox keeps the music playing in all manner of extreme environmental elements and activities.

The DemerBox is a product of both new, proprietary technologies and "innovation in taking existing high-tech parts and putting them together in new ways." Looking something like a



Hodgdon Yachts built the 83-foot Mako coastal patrol boat for the U.S. Navy in 2008; max speed is **50 knots**.

EUREKA MOMENT:
SEAL Sled



EUREKA MOMENT:

Who Needs Wheels

cross between a toolbox and camping stove, the boombox—which can be operated from a smartphone—features a Bluetooth range of over 30 feet and up to 40 hours of battery play. Nothing on the market today approximates the DemerBox, although Demer expects that to change as the business grows. “[Co-founder Jayson Lobo and I] love being in Maine, and Portland is full of creative, supportive people. Portland is somewhere we can safely grow our business.”

Although technically invented by Demer during a film shoot in Alaska, the Maine inspiration in the Demerbox is clear, surviving the most rugged of conditions and appealing to our sense of adventure. “We strapped it to a kayak and went for a ride at Steep Falls on the Dead River in Maine. We have frozen it in ice, buried it in snow. We once dropped it from our office balcony onto the cement floor 30 feet below. It bounced and spun five times in the air before landing back on the floor. The music never stopped playing.”

But the ultimate test of durability is fishing boats. “The elements are extreme—the temperature, splashing water, getting knocked around. And the fisherman, they have to have the music really loud if they want to hear it, and they also play it all day. If DemerBox can survive life on a fishing or lobster boat, it can survive anything.”

Watch Demerbox survive a kayak ride on

FROM TOP: PHOTO FROM MAD MAX: FURY ROAD; COURTESY DEMERBOX; COURTESY HODGDON YACHTS - R. MITCHELL

Pedro's

Live Salsa Music-4th Friday of the Month!

Lunch • Dinner • Drinks

Open Year Round
Daily Happy Hour

207-967-5544
PedrosMaine.com
181 PORT ROAD, KENNEBUNK

You're in for a treat

- Hand-crafted in small batches
- Sweetened with real sugars
- Caffeine Free
- Gluten Free

ROCK BEER CREAM SODA BLUEBERRY POP GINGER BEER STRAWBERRY POP ORANGE POP BLACK CHERRY POP

New flavor! New flavor!

www.captneli.com
Capt'n Eli's Sodas | 86 Newbury Street | Portland, ME 04101



ART HOUSE
PICTURE FRAMES

61 Pleasant Street Portland, ME 04101
207-221-3443 arthousepictureframes.com

Conservation Framing
& Design Services

Handcrafted Frames from
American hardwoods
& Reclaimed Wood

Eco-friendly Finishes

Traditional & Modern
Silver & Gold Leaf Frames

In the Bakery Studio Building



TAPSNAP™
PHOTOTAINMENT

A premium photo entertainment experience!

Looking for that something extra to make your wedding, fundraiser, or party a blast? Need an innovative way to market your brand?

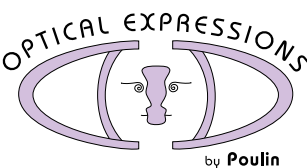
TapSnap does it all!



To learn more, visit us at www.TapSnap1076.com or call 207-274-9984



An expression of her optical experience by artist Joyce Raychard



OPTICAL EXPRESSIONS
by Poulin

distinctive eyewear • eyecare

Dr. Philip Poulin, Optometrist
Trudy Poulin, Optician

87 Exchange Street Portland, ME
207-871-7553 • www.opticalexpressions.com

BREAKTHROUGHS

Maine's Steep Falls at <http://demerbox.com/pages/videos>.

VEMI LABS

Igniting imaginations

"People are horrible at imagining things. What we do is allow people to get inside scenarios and actually experience them," says Dr. Nicholas Giudice, director of VEMI Labs at the University of Maine. VEMI, an acronym for Virtual Environment and Multimodal Interaction, is one of the few laboratories in the country—and the only lab in Maine—to research and study applications of virtual reality and augmented reality technologies with a multimodal focus.

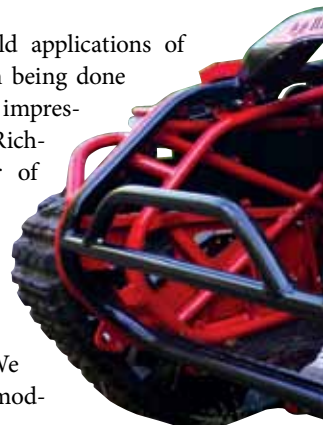
Um, say what?

No worries, it's not as complicated as it sounds. A quick primer: Virtual reality is a made-up world (think Google Glass); augmented reality projects virtual information onto real life imagery (e.g., via a smartphone or tablet, informational text can be superimposed onto buildings as a person passes them); and multimodal refers to the senses, such as touch and sound.

"In Maine, high-tech isn't just blowing in the wind."

VEMI was created in 2008 to serve as a research resource. "The idea is how we use technology to understand how we interact with our environment. For example, navigation. How do you get from one place to another, and how can technology be used to better navigate a physical space?" says Giudice. "Audio and tactile cues give the same information to the brain as visual cues in many instances, but the brain just wants the information—it doesn't care how it gets it. And this is where the multimodal aspect of our research comes into play."

The real-world applications of the research being done at VEMI are impressively broad. Says Richard Corey, director of operations, "We did a project dealing with wind turbines proposed for three miles off the coast of Monhegan Island. We rendered a digital mod-



el and placed the turbines into the model at exactly where they would be. Through head-mounted displays people could see exactly how it would look and sound from any point on the island, even from a window in their house.”

“With augmented reality, we brought them right inside the scenario. They were then able to make a decision based on real data,” Giudice continues. The impact was powerful, changing perceptions of the project in a positive direction. “They became more open to the idea and less concerned about how it would affect tourism.”

Another application assists the blind with ‘seeing’ visual graphics and navigating unknown physical spaces. Giudice says, “The blind have text access through speech devices or braille, but they are not able to access graphical information. We created a vibro-audio interface that gives them this ability. For example, the data line running across an x-y axis graph will vibrate so that the person can follow it.” Tactile representation can also be made of an indoor space. “The blind have seeing-eye dogs, but dogs cannot read arrows and signs. So this is another navigation tool.”

Coming from disciplines as diverse as engineering, science, philosophy, and theater, students working in the lab also benefit, learning vital technology skills to take to future jobs. “These skilled students feed into Maine’s labor market, which is good for the state,” Giudice says.

COURTESY HOWE AND HOWE TECHNOLOGIES




BANDALOOP

**Fresh Dishes Created from Organic,
All Natural Foods!**

**Chef Owned
Serving Dinner at 5pm
Reservations Recommended
Open Tuesday - Saturday, Closed Sunday & Monday**



**2 Dock Square, Kennebunkport
Entrance on Cross St. • 207-967-4994 • Bandaloop.biz** 

GÜVEN DESIGNS

Anatolian Art



Originally from Turkey, Zafer Güven now produces his ceramic pieces in Maine. Zafer’s ceramic designs are influenced by traditional Anatolian ceramic methods as well as contemporary themes.

Handmade carpets from Turkey, Persia, Kazakstan, and Afghanistan complement Zafer’s pieces in the Güven Gallery in Portland, Maine. The rug selection includes wool, silk, and cotton in a variety of sizes. All carpets are made with plant based dye.

Güven Designs
Anatolian Art

83 Market St.
Portland, ME 04101

207-751-9107
www.guvendesigns.com

THE TIDEWATER MOTEL



Vinalhaven Island, Maine



Twice a day all the water in the Atlantic heads for this fine waterfront lodging and meeting facility. You should too. You'll be glad you did.

info@tidewatermotel.com • 207-863-4618 • tidewatermotel.com

LESS IS MORE

OUR PHILOSOPHY IS WARDROBES SHOULD BE SMALL, EFFICIENT, AND STYLISH



WE CAN HELP CREATE YOURS

(207) 773-3906 DAVIDWOOD.COM

DAVID WOOD
PORTLAND.

BREAKTHROUGHS

Corey continues, “More than half our students want to stay in Maine after graduating. But when offers are coming in from Google and other tech giants, it’s hard for them to stay. So we are always looking to connect with more Maine companies.”

HOWE AND HOWE TECHNOLOGIES Mobilizing for a better world

There are not many technologies that can claim to protect firefighters and policemen, aid the military, make off-road adventure handicap-accessible, and help Bruce Willis and The Rock overthrow the Cobra Commander. Yet the technology behind brothers Geoff and Mike Howe’s ‘extreme’ vehicles can do all of that and more.

At the Howes’ Waterboro-based company, “we build vehicles you cannot find or buy anywhere in the world because either the technology does not exist or it is far too expensive.” Those vehicles include the robotic (i.e., unmanned) Swat-bot (for police use); Thermanite (firefighting); Terramec (plow and bulldozer); and the Ripsaw (military operations). The Ripsaw is the world’s fastest tank and was named ‘Invention of the Year’ in 2009 by *Popular Science*.

Another vehicle, the Ripchair, is an off-road vehicle that does not require a handicapped person to get in and out of his or her wheelchair, allowing for greater freedom. “When a client test-drives the Ripchair, he is crying [with joy], his mother is crying... these people have been in accidents or on the battleground or experienced a debilitating disease and some have not been out of their houses for 20 years,” says Geoff Howe. The vehicle retails for around \$39,000 for the computerized version.

Born in Augusta, the Howes are “proud Mainers” who wanted to stay in and stay true to the state, even if it costs a little more to do so. “Since 2006, we have brought over \$10 million into the state. We spend the money in Maine, purchasing from local companies when possible. People out in California and Colorado, where there are frequent wildfires, ask us, ‘Why Maine?’ Yes, it would make sense for us to be in the middle of the country from a shipping standpoint, but we are committed to staying here.”

As a Maine native, Howe believes growing up in Maine develops character traits that are typical of great technology innovators. Main-

ers are presented with challenges in daily life and in business which they learn to deal with in creative ways. “We don’t always have access to everything here, but the attitude is that we have to make things work because we love where we live. So we find ways around problems. You are going to get a lot of innovation out of Maine, plain and simple.”

XHARP

A world of sound in a single blow

When Wayne Read blows into his harmonica, you never know what is going to come out. Maybe it’s the twang of a harmonica—or maybe the *dolce* lull of a flute, the sing of a violin, or the whir of a helicopter’s wings. This is not Bob Dylan’s harmonica—this is the XHarp.

Musician and composer-turned-inventor “Wayne from Maine” (as his younger fans call him) has taken the humble harmonica to the ‘x-treme’ with a serious high-tech makeover.

The plastic, sandwich-sized XHarp—which has no reeds—uses pressure sensors that respond to the player’s breath, creating notes and controlling volume. A MIDI (musical instrument digital interface) chip allows the player to choose from over 100 sounds. The system is analogous to an electronic keyboard. The advantage, however, is freedom of the fingers. “A musician can play the sounds of an electric keyboard while simultaneously playing the guitar or even the drums,” Read says.

Another advantage of the XHarp is its full range of tuning possibilities. Unlike the traditional harmonica, which is tuned to one key (typically a 7-note diatonic), can be tuned to any type of scale, such as chromatic (12-note), yo (five-note, Japanese), Persian (seven-note, Middle Eastern), and Phrygian (seven-note, Flamenco). “It is very multi-functional in a cultural sense. It really opens up possibilities for the player.”

While the current version, the V24, is still in the beta stage, Read is already dreaming up other applications. “For example, a paraplegic person could use our mouthpiece to write, with the holes representing alphabetic letters and phrases instead of musical notes.”

A very limited number of V24s may be on the market as early as June of this year and are set to retail around \$1,000. Hear Wayne and his XHarp every Sunday, 5 to 8 p.m., at Ron’s Landing in Hampton Beach. ■

... is good for me ...

the honey exchange

what's good for the ...

- local and artisan honey with tasting bar
- unique gifts, mead, wine and beer
- all natural line of skincare products
- observation hive and hobbyist beekeeping

thehoneyexchange.com • 207.773.9333

494 Stevens Avenue, Portland, Maine 04103

10-6 Tuesday-Saturday • 10-2 Sunday



Discover the savings opportunities that await you at your local AAA office!

Membership • Insurance • Travel

MAINE Locations!

- Portland:** 68 Marginal Way
207-780-6950
- South Portland:** 401 Western Ave
207-775-6211
- Biddeford:** 472 Alfred Rd Suite 102
207-282-5212
- Brunswick:** 147 Bath Rd a130
207-729-3300
- Auburn:** 600 Center St
207-786-0664