

## JANUARY 12, 2021: FOUR YEAR

Dear customers and friends,

It's been four years since I started [Forecast LLC](#), and I'd say this was a year of change and growth. Many changes were forced upon us all, and fortunately I have been able to take advantage of the opportunities afforded by these changes to do some personal and professional development in addition to serving my customers.

One of my customers, Weltha, launched their product, a human-powered spinning balance/meditation device, with a 105-unit made-in-Vermont production run. [PCG Machine Shop](#) in Hartland made the metal parts, [The Treehouse](#) in South Burlington made the wooden parts, [SAC Fastener](#) in Williston supplied the fasteners, Talon Flutes in Burlington did laser engraving, and [Riven](#) in Burlington provided finishing and assembly. I am pleased to support manufacturing in Vermont, and I appreciate the diverse collaboration.

[Fat Bike Skis](#) continues to innovate, and we explored a few new concepts this year. I led [StrollRunner's](#) product development, and they are now starting a made in USA first production run of a high-performance hands-free belt for pushing jogging strollers. I worked with [Vasa](#) to design, prototype, and test a new piece of exercise equipment, based on a great idea, a rough sketch, and many collaborative discussions.

Through the Restart Vermont Technical Assistance Program (ReVTA), [LogOX](#) engaged me to help them design a prototype of a new wood handling tool to expand their product line. In a very short timeframe imposed by the program deadlines, we created, reviewed, and iterated on many concepts. I then made manufacturing and assembly drawings, sourced the components, and coordinated manufacturing with [Mainly Metals](#) in Bristol VT.

This year I was able to help several individual inventors refine their ideas and make progress on their product design and engineering, including Disc-Adventures who is making an accessory for disc golf goals, [Surreality Games](#) who is making an arcade game with unique and robust joysticks, Lewis Enterprises who is making a face mask clip to prevent glasses fogging, [Blue Vista Creations](#) who is making a guitar prop and a tablet holder for visually impaired people, and Vertiva who is making a wall-mounted massage board. Helping people make progress on their dreams is a lot of fun!

I continued sponsorship of [LaunchVT](#) by providing design and engineering time to winners, and this year I assisted with the selection of [JumpStart](#) program participants. In partnership with [CATMA](#), I led a team from [Leadership Champlain](#) to develop the Short Commute Network, a method for multi-site employers to shorten employee commutes.

The first batch of made-in-Vermont heat pump rain caps that I designed sold out this year, and based on customer feedback an updated design is on the way and will be in stock soon. I also started design, development, prototyping (15 versions so far!), and testing of a new lightweight, comfortable, and warm style of mitten to eliminate cold and uncomfortable hands while running and walking. My family members are all skilled sewers, and they are teaching me what I need to know to turn my ideas into reality. Tester feedback has been positive and helpful so far.

Through many updates over the past several years, with a final push in 2019, my home (and office) is now powered by renewable energy. In 2020 our on-site solar panels produced more electricity than we used, including one electric car. Heat (and summer cooling) comes from three cold-climate heat pumps, and we disconnected from natural gas service. Upgrades that got us there include an energy audit, air sealing and insulation in many places, solar hot water, photovoltaic solar panels on a pole and on the roof, a few new windows, cold-climate heat pumps, a heat pump water heater, a drain water heat recovery unit, LED light bulbs, bicycles to reduce driving, and behavior changes. It was a long process, but our results show that updating a standard home to utilize modern energy is possible and practical.

There are several updates that fall under growth and development. Over the summer, I acquired a desktop CNC mill/router and I've been enjoying learning how to program it and make things. It is a great addition to my 3D printer for being able to create prototypes and depending on the product, final products. To develop and demonstrate my CAD

skills, I earned two new SolidWorks certifications in 2020. Outside of engineering, I have continued my study of the Chinese language through app-based lessons, self-guided learning, reading and writing, and conversations with native speakers. I discovered that learning to read and write the Chinese characters helped me to retain vocabulary better than only focusing on speaking and listening, and I can now read and write about 330 characters. This is a small fraction of what is needed to be fluent or even read a newspaper, but I am progressing and my 2021 goal is to know at least 500 characters. Through the [Strengthening Working Families Initiative](#), I am registered to take basic, intermediate, and advanced TIG welding classes this spring. Becoming a better welder will be fun and will help me be a better design engineer. The SWFI program is a great opportunity for parents of young children to obtain no-cost training in manufacturing.

I hope you and your families are healthy and you are continuing to be a positive influence on the world. Thank you for the trust, confidence, and support you have shown me over the past four years. Feel free to email or call if there is anything you'd like to share, you need help with something, or you just want to catch up.

Keith Epstein  
Forecast LLC  
(802) 862-7101  
(802) 777-0158 (mobile)