

# Andrew Brimer

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**Andrew is a patented inventor, seasoned entrepreneur, engineer, product manager, and designer seeking high-value opportunities.**

Andrew co-founded Sparo Health, a digital health & medical technology company focused on building solutions for people with respiratory conditions, such as Asthma and COPD. Andrew led the design, development, and hardware manufacturing of Wing® (<https://mywing.io>), the first FDA-cleared smartphone sensor + app to measure lung function. Andrew and his team later expanded the company's offering to include Lift Pulmonary Rehab (<https://liftclass.com>), an online, video-based fitness, education, and rehabilitation platform for people with COPD.

Andrew has been named to Forbes "30 Under 30" and received a highly competitive Arch Grant. He has presented his work at the United Nations in NYC, the Cleveland Clinic, the University of Oxford, and The White House. Andrew is a patented inventor and has been published in peer-reviewed journals on the subject of soft nanomaterials. He holds a B.S. in Mechanical Engineering & Materials Science from Washington University in St. Louis. Andrew is also an avid musician and composer—proficient in piano, trombone, drums, ukulele & Logic Pro. He currently lives in St. Louis, MO.

## Co-Founder, CTO

2013 - Present

*Sparo Inc. (St. Louis, MO)*

- Founded a digital health startup focused on innovative patient solutions to improve respiratory care
- Formed & communicated the company's vision, strategy, and objectives; presented publicly at the United Nations, the Cleveland Clinic, and the White House
- Set up and managed all electrical engineering, industrial design, DFM, manufacturing, and supply chain operations to produce 1000+ units of an FDA-cleared medical device
- Built and maintained relationships with investors and strategic partners; raised \$3m+ in venture capital & grants; modeled financial projections & budgets
- Hired, trained, managed, & developed new employees & contractors in various roles

## Product Management / Product Strategy

- **Wing®** - led team to achieve the first FDA-cleared, over-the-counter smartphone sensor + cloud-connected app to measure lung function (<https://mywing.io>).
- **Lift Pulmonary Rehab** - led team in building a video-based education & rehabilitation program for people with COPD & other respiratory conditions (<https://liftclass.com>).
- Analysed customer & internal needs to guide strategic & product decisions
- Directed digital marketing operations, analysis, & optimization (*Facebook & Google Ads*)
- Relevant Skills: *Github, Trello, GSuite, Excel, InVision, Facebook Ad Platform, Public Speaking*

## Product Design / Front-End Design

- Led the design of both Wing® and Lift Pulmonary Rehab websites & apps
- Collaborated with multiple designers to plan, execute, & adapt design assets
- Managed user research & patient interviews to define hone user personas & requirements
- Analyzed customer feedback to iterate on UI/UX to increase usability for older populations
- Relevant Skills: *HTML, CSS, Javascript, Adobe InDesign, Adobe Photoshop, Adobe Illustrator*

## Front-End Development

- Built & helped maintain Lift Pulmonary Rehab website & Wing landing page
- Developed v1.0 of Lift video-based subscription web app (*Firebase, Node.js, NoSQL*)
- Managed development for v2.0 of Lift Pulmonary Rehab web app (*Firebase, Node.js, NoSQL*)
- Managed integrations with a number of 3rd party APIs & services: *Stripe, PayPal, Sentry, Mailchimp, Typeform, Calendly, Zoho, SurveyMonkey, Twilio*
- Relevant Skills: *HTML, CSS, Javascript, jQuery, Node.js, React.js, Github, Firebase, NoSQL, REST, AWS*

## Previous Experience:

### **Research Assistant - Soft Nanomaterials Lab**

2011 - 2013

Washington University in St. Louis (St. Louis, MO)

- Worked under Dr. Srikanth Singamaneni & Dr. Abdennour Abbas
- Performed fundamental & applied research focused on molecular self-organization
- Designed a foundational microfluidic, paper-based, plasmonic sensor platform

### **Research Assistant - Stable Isotope Biogeochemistry Lab**

2011 - 2012

Washington University in St. Louis (St. Louis, MO)

- Processed, extracted, and purified samples for isotope analysis and experimentation.
- Performed chemical experiments on carbon, nitrogen, and sulfur stable isotopes to understand biological cycling and large-scale ecosystem dynamics.

## Education:

Washington University in St. Louis - School of Engineering  
B.S. in Mechanical Engineering & Materials Science,  
Minor in Energy Engineering; GPA: 3.5/4.0

2009 - 2013

## Awards & Recognition:

- Forbes 30 Under 30, Healthcare Category (*Forbes*, 2018)
- Received the first-ever FDA clearance for a smartphone sensor that measures lung function (*FDA*, 2016)
- Most Innovative Medical Company (*St. Louis Business Journal*, 2015)
- Arch Grant Winner (*Arch Grants*, 2014)
- CIMIT Technology Prize for Primary Care, 1st Place (*CIMIT*, 2013)

## Presentations & Public Speaking:

- Guest Lecturer for **Washington University School of Engineering** J-Term Program (*WUSTL*, 2016-2019)
- Presented at the first ever **White House Demo Day** (*President Obama*, 2015)
- Presented at the **Cleveland Clinic** (*Cavendish Global Health Impact Forum*, 2015)
- Presented at the **United Nations HQ** in NYC (*Cavendish Global Health Impact Forum*, 2014)

## Patented Inventions & Intellectual Property:

- Utility Patent, Primary Inventor on US Patent #: **US9706946B2** (*USPTO*, 2018)
  - "Systems and methods for measuring airflow, which may be used to monitor or assess respiratory function—including a flow meter in communication with a computing device executing one or more applications to process and analyze data generated by a fluidic oscillating spirometer"
- Design Patent, Primary Inventor on US Patent #: **USD820447S1** (*USPTO*, 2017)
  - Design patent covering the physical embodiment of the Wing hardware sensor

## Academic Publications:

- **"Vesicle-mediated growth of tubular branches and centimeter-long microtubes from a single molecule."** Abbas A, Brimer A, Tian L, d'Avignon DA, Hameed AS, Vittal JJ, Singamaneni S. *Small*. 2013 Aug 12;9(15):2611-8, 2477. doi: 10.1002/smll.201202509. Epub 2012 Dec 16.
- **"Multifunctional analytical platform on a paper strip: separation, preconcentration, and sub-attomolar detection."** Abbas A, Brimer A, Slocik JM, Tian L, Naik RR, Singamaneni S. *Analytical Chemistry*. 2013 Apr 16;85(8):3977-83. doi: 10.1021/ac303567g. Epub 2013 Mar 11.