Richard Whalley - CV

Former Medical Device Startup Founder, MIT trained Scientist/Engineer and Digital Artist/Musician who led and successfully exited a medical device startup. I love helping people find their creative spark and managing small teams. I build new ways of experiencing health by getting things done in a mundane step-by-step fashion. I focus on engineering, art, consciousness, and creative practices supporting health and self-awareness.

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Education

Massachusetts Institute of Technology (MIT), Cambridge, MA (Aug 2006-Feb 2010)

- Bachelor's of Science in Chemistry
- GPA:4.7/5.0

Experience

Engineering and R&D Consulting - AstraDx (Fall 2022 - Present)

- Concept phase design development of a novel early detection system for bacterial infection that reduces time for selecting appropriate antibiotics from 2-3 days to 6 hours.
- Engineered full prototype of bench-top detection system including circuit design of high precision photodiode detection system, mechanical assembly, firmware development, temperature control chamber, and data analysis

Succurro Fellowship (Winter 2022 - Fall 2022)

- Inspired by personal life events, training to lead one-on-one sessions in BreakThrough, an advanced conflict resolution technique that brings awareness to the mind's blind spots, identities, and belief systems
- Training in SourcePoint, a form of on-the-table "information" therapy that works with imagery and light touch to tap into the mind-body's innate capacity

to experience health

- Training in Franklin Method, a lifelong study in integrating dynamic imagery with anatomical mechanics to improve proprioception and embody healthy, safe, efficient movement in the body

Post Acquisition Engineering Consulting (Winter 2021 - Summer 2022)

- Led the transition of core technological information and IP from Common Sensing to three companies that acquired Common Sensing's IP and assets and are pursuing market launch for various indication areas.
- Wrote over 100 pages of software and technological specifications and test plans detailing the inner workings of Gocap's core technology
- Trained a small team on a tight timeline to implement a data collection operation and evaluation of a new injector pen product SKU and evaluate the results for a major pharmaceutical client
- Developed a novel machine learning approach to improving the technology's accuracy for its next generation of implementation

Common Sensing - Board Member (Fall 2012 - Present)

- Support management of financial accounts, technical information, legal transactions and relationships, and cap table post acquisition

Common Sensing - President (2015 - Winter 2019)

- Took lead on the core technology and team management during the process of sale of the company (licensing of technology and acquisition of assets)
- Owned specification, development and maintenance of core algorithm, data collection, and other R&D software written primarily in Python
- Built out Human Resources department and played critical role in building out a culture supporting Diversity and Inclusion, leading and owning all hiring and firing processes
- Created concept novel and integrated business model for insulin care delivery called Fleet Health with Lead Designer that supported patients by removing unnecessary barriers to payment, education, and access to care
- Led departmental reorganization leading to Sustainable Rebuild of ISO 13485 Quality System from ground up, selecting and implementing a new EDMS resulting in 0 major findings from all subsequent audits
- Designed an interventional clinical study and led data analysis of an observational clinical study
- Designed and implemented prototype web application for semi-automated delivery of insulin
- Supported manufacturing activities, and led selection of injection molding contract manufacturers
- Drafted and authored the core statement of work for a $2M dollar development project

- Supported fundraising of $6.7M Series A with co-founder that rolled in prior convertible debt rounds

Chief Executive Officer and Co-Founder - Common Sensing Inc. (Fall 2012 - 2015)

- Conceptualized and prototyped Gocap Technology, an optical method of estimating the volume of liquid in an injector pen using LEDs, photodiodes and machine learning
- Led and raised $1.5M Series AA from top tier VC fund to support the vision of supporting people with diabetes with automated dose tracking using Gocap, an affordable smart injector pen cap
- Led and raised an additional $1.5M Convertible Debt round to support the commercialization of Gocap and a clinical pilot at a major health system in Virginia
- Led hiring and management of 10+ person team of engineers, executives, designers, UX researchers, and quality professionals
- Conducted initial UX research and designed concepts for initial device and phone applications
- Led software implementation of Bluetooth Blood Glucose Monitor (BGM) integration in Java on Android platform
- Led software implementation and design of patient facing data visualizations related to insulin and blood glucose data in Java on Android platform

Associate - CBT Advisors, Cambridge, MA (June 2010 - August 2012)

- Created data-driven strategy solutions and market analysis for companies in the biotech, pharma, healthcare information technology, and venture capital industries
- Delivered market and competitive analyses, evaluations of investment opportunities, business plans, white papers, pitch decks, and technical due diligence
- Critiqued, analyzed and presented R&D data for a critical presentation at a high-profile conference
- Helped form business and R&D strategy for an emerging therapeutic vaccine biotech company
- Provided market research and scientific consulting for a life sciences venture capital firm

Visiting Scientist - Koch Institute for Integrative Cancer Research, MIT (June 2011 - Feb 2012)

- Investigated an idea for a novel exosome drug delivery platform for RNA therapeutics, further investigated by a colleague at Harvard MCB in the Church lab during Doctoral and Post-Doctoral work

Intern - incTANK Ventures, Cambridge, MA (June 2010-Sept2010)

- Conducted scientific analysis regarding emerging technologies, providing recommendations to the partners
- Determined potential new ventures, utilizing creative thinking, the scientific literature and market trends
- Met and discussed ideas with clients, critically evaluated pitches, and gave high-level insight to the partners

Undergraduate researcher - Ting Lab, Dept. of Chemistry, MIT (Dec 2007-Dec 2009)

- Designed, synthesized and evaluated small molecule, quantum dot ligands for live-cell imaging of proteins
- Conceptualized, made and tested protein-based quantum dot ligands for protein targeting and imaging
- Conceived novel experiments with marginal literature precedent, setting the groundwork for PhD students

Intern - Biogen-Idec Inc., Dept. of Medicinal Chemistry, Cambridge, MA (June-Aug 2007)

- Small scale synthesis and characterizations of *in-vitro* and *in-vivo* properties of around twenty analogues of a RAF inhibitor for supressing the growth of melanoma (and potentially other cancers)

Intern - Biogen-Idec Inc., Dept. of Neurobiology, Cambridge, MA (June-August 2006)

- Validated the effects of demyelination and remyelination via immunohistologial assays
- Aided with a rat model of demyelination (lysolethicin), brain dissection, brain processing and slicing

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Skills

- Team Management - Leading company team meetings, traceable goal management from employee level to department to company OKRs, compensation plans, payroll/benefits systems, hiring/firing processes, conflict management and accountability practices
- Presentations - Data-driven stories for fundraising and development agreements, creating concise summaries and visuals of complex scientific and technical data and ability to translate between diverse technical and non-technical audiences
- Legal - Fundraising termsheets, development proposals, license agreements, material transfer agreements, employee agreements, BAAs (HIPAA), NDAs, etc.
- Software Engineering - Object Oriented Programming, Functional

Programming, Data Science, Internet of Things, Software Specifications & Requirements, Firmware
- Programming Languages and Frameworks - Python, C++, Java, Javascript, C, HTML/CSS, Flask/React/Django, Android, iOS, Markdown, MVC
- Circuits & Electronics - Schematic design and PCB layout (KiCad), LTSpice, Digital Microcontrollers, Basic Analog Circuit Design
- Manufacturing - Selecting and auditing appropriate manufacturers and suppliers, timeline management, budget and proposal creation
- Risk Management / Analysis - ISO 14971, Hazard Analysis, FMEA
- Quality Systems - ISO 13485, FDA 21CFR820, EDMS (Qualio)
- Requirements Management/Design Controls - JAMA
- Probability & Statistics - Sampling Systems, Verification and Validation, Production Monitoring
- Data Science - Signal to Noise Analysis, Numpy, Pandas, Matplotlib, Octave
- Machine Learning - MLP Neural Networks, Linear Regression, k-NN, Scikit-learn
- 3D Design - AutoCAD Fusion360, 3D Printing, Injection Mold DFM, Mechanical Design Reviews
- UX/UI - User Validation Studies, Simulated Use Studies, Human Factors Studies, Interviewing, Developing User Needs
- Clinical - Clinical Data Analysis and Statistics, Clinical Trial Design
- Visual Design - Processing (Programmatic), Vector Graphic Design (Inkscape), Typography
- Woodworking and Furniture Design

Additional Coursework

- Coursera (Compilers, Machine Learning - Andrew Ng)
- MIT EdX, OCW (Intro to Circuits, Intro to Algorithms)
- Wave Mechanics, Linear Algebra

Patents

- Dose Measurement System and Method - US 9638564 B2 - May 2 2017
- Dose Measurement System and Method - US 9250111 B2 - Feb 2 2016
- US 8817258 B2 Aug 26 2014
- US 9255830 B2 Feb 9 2016
- US 10,258,743 B2 Apr 16 2019
- US 10,255,991 B2 Apr 9 2019

Press

- Data-driven diabetes management - MIT News (2016) https://meche.mit.edu/news-media/data-driven-diabetes-management
- A healthcare startup to improve dose management for injectable drugs raises $6.6M - MedCityNews (2018)
- Remembering to take your insulin - JDRF News (Dec 2016)
- Haselmeier D-Flex Connect (2021) https://haselmeier.com/en/services/d-flex-connect/

Papers / Publications

- Bluetooth Pen-cap identifies gaps in adherence to insulin dosing and timing: A critical step in safe diabetes management. Toschi et al.
- Use of Gocap to evaluate appropriateness of bolus insulin dosing to achieve target glucose levels in patients on basal bolus insulin. Munshi et Al.
- Evaluation of Patient Acceptablility of the Gocap Inuslin Pen Smart Cap Dose Tracking Device. Thompson et Al.
Automatic Insulin Dose Monitoring: an essential Technology for Optimizing Time in Range (TiR) for MDI Patients. Villagra et al.
- Nonadherence to Inuslin Therapy Detected by Bluetooth-Enabled Pen Cap Is Associated With Poor Glycemic Control. Toschi et al.
https:/doi.org/10.2337/dc18-1631. Diabetes Care.
- Examining the Relationship Between Pre- and Postprandial Glucose Levels and Insulin Bolus Timing Using Bluetooth-Enabled Insulin Pen Cap Technology and Continuous Glucose Monitoring. Munshi et al. DOI: 10.1089/dia.2019.0186. DTT.
- Ubicomp 2012, "Gluballoon: A System for Diabetes Self-Management" (Accepted)
- Xconomy, Aug. 24, 2011, "How Google+ Could Transform Healthcare and Medicine"
- The Healthcare Blog, July 19, 2011, "Google Health is Dead, Google+"

Awards & Fellowships

- MIT Media Lab Health and Wellness Hackathon 2012 (Second Place)
- BioVenture Case Competition (First Place) - sponsored by MIT Sloan Graduate School of Business and Alnylam Pharmaceuticals (Winter 2010)
- Paul E. Gray UROP Research Fellowship (Summer-Fall 2009)
- Howard Hughes Medical Institute MIT Summer Research Fellowship in Chemical Biology (Summer 2008)
- Teaching Assistant for Organic Chemistry I (5.12) at MIT

(Updated February 2023)