

Tags: **Strategic Design** | **Systems Engineering** | **Product Development** | **Global Markets** | **Software-Hardware**

Visual Résumé: bit.ly/jmill-gen570a4

SUMMARY

I performed applied research and telehealth development for the U.S. Army and Navy and then became a venture founder, advisor, and investor. I gained engineering, design, and product experience leading several tech startups, later earning investment experience sourcing opportunities for venture impact funds.

Concurrent to the venture work, I maintain a teaching appointment and research affiliation at MIT, where I helped grow its professional programs in Machine Learning, Smart Manufacturing, and Corporate Innovation.

Operations

Since 2004, developed Software and Hardware products and services (Consumer and Enterprise) in industries including E-Commerce, Health Tech, Robotics, Infrastructure, and Financial Services. Recognized by **Booz Allen Hamilton Analytics**, **BCG Gamma**, **U.S. Department of Defense**, and other organizations.

- **Experienced:** Professional work in product development, systems engineering, and design strategy
- **Rigor:** Background in Applied R&D, Product Lifecycle Management, and advanced degrees in engineering, business, and human-centered design.
- **Thought Leadership:** Published in outlets ranging from *Science Translational Medicine* to *Engadget*, authored computational statistics guidebook, advisor to Artificial Intelligence interest/ethics groups and startups.

Key Expertise: 1. **Product Development** (*Intelligent Automation and Digital/Physical Product Innovation*)
 2. **System Design and Engineering** (*emerging Edge, IIoT, Analytics, A.I. technologies*)

Management

Venture builder and advisor with first-person technical founder experience. Responsible for Product, Engineering, and Business for multiple ventures and recruited cross-disciplinary teams (managing up to 50 people).

- **Founder:** Launched (to seed stage) 7 hardware, software, and service companies.
- **Deal Flow:** Sourced investment opportunities for Principium Ventures and WFS Ventures.
- **Trusted Mentor:** Advised 30 teams (mix of professionals and students) on product-market fit, guiding them through IP strategy, technology development, capitalization, and growth in established and emerging markets.
- **Entrepreneurial Ecosystems:** Bay Area, Boston, Pittsburgh

PROFESSIONAL WORK

WFS Group

San Francisco, Cali., Pittsburgh, Penn., and Cambridge, Mass., USA 01/2004 – present

Founding General Partner for boutique venture creation firm WFS Ventures (pre-seed technology and product development, angel investing, and advising) and technical consultancy WFS Research (primary research and consulting for frontier technology commercialization)

- Founded, invested in, and led full-stack development for 7 early stage companies, including architecting systems, writing code, developing U.X., provisioning hardware, designing product, recruiting, fundraising, and managing P&L.
- *See Page 2 for venture descriptions.*
- I generated \$Mns in revenue, increased environmental protection, and lowered human health risk.
 Recognition: MassChallenge 2x Winner (top 1% of 1,000+ startups globally), Y Combinator (finalist), MIT 100K (2nd place), TechStars Sustainability, Young Entrepreneur of the Year (Pennsylvania), Forbes 30 under 30 Nominee
- For each venture, I defined system scope, requirements, and key performance indicators, functioning as the 'glue' that integrates cross-disciplinary teams. Navigate from 0 → 1 in self-directed, high uncertainty environments.
- My tech-strategy consulting clients include Alphabet X, Airbus Ventures, and Flex.

Tough Tech Today with Meyen and Miller

Cambridge, Mass., USA 01/2020 – present

Co-host of the premiere show spotlighting frontier technologies and the entrepreneurs, investors, and champions building them.

- **Broadcast Media** – Led the soup-to-nuts design and production of a biweekly long-form interview show format for release on video and podcast. Published on major content platforms including Youtube, Spotify, and Apple Podcasts.
- **Trend Detection** – Identify, research, and gain situational awareness of emerging fields in science and engineering, then conduct substantive interviews with guests of the show.

MIT Innovation Initiative (MITii)

Cambridge, Mass., USA 09/2018 – present

Research Affiliate for Government-Private deep tech research, development, and investment. MITii is the thought leader on advancing tech-enabled impact across all disciplines and regional economic profiles.

- **Ecosystem Analysis** – Developed interview protocols, performed field research (on-site and remote), determined stakeholders, performed interviews ($n = 30$), produced actionable recommendations for National Lab Network.
- **Publishing** – Co-authored case study (2019) for White House Office of Science and Technology Policy, Office of the Vice President. Topic: U.S. DoD Labs' technology development and transfer.
- **Curriculum** – Developed and executed plan to interview stakeholders in government, defense, risk capital, and startups to prepare new MIT course on “Dual-Use Ventures” (startups serving private and government clients).

Endeavour Partners

Cambridge, Mass., USA 08/2017 – 12/2018

Senior Technology Expert and Senior Consultant (contractor) for strategy firm with expertise in digital and mobile for the Global 2000. EP is a ~20-person boutique consultancy under leadership of tech expert Michael A.M. Davies.

- **Smart Home** – Investigated A.I. trends, developed 5-year hardware/software plan for \$3Bn consumer device client
- **Supply Chain Modeling** – Developed financial impact model of threatened NAND/SSD shortfall for \$200Bn client
- **Blockchain Logistics** – Researched blockchain IoT strategy for 3PL OEM global warehousing client (\$800Mn CAGR)
- **Corporate Consulting** – Performed strategy and legal work for clients including Samsung, Apple, Google

Center of Excellence for Remote and Medically Under-Served Areas

Loretto, Penn., USA 05/2004 – 12/2009

Technical Project Manager and Researcher for CERMUSA, a DoD-funded telehealth lab focusing on ad hoc communication systems and emergency first response.

- **Full Product Lifecycle** – Responsible for working with vendors, procurement, product development, and deployment of 4 projects: [A.] Mobile Access Point (robotics and wireless telecom), [B.] All-Hazards Tool (HUD UX dev), [C.] Preventative Maintenance System (web-based material tracking process and tooling), [D.] Geospatial Context Awareness (Real-time remote command/control systems and digital model-making).
- **Applied R&D** – Developed medical applications for U.S. Army / Navy, incl. analytics, simulation, and enterprise architectures. Wrote code, built hardware, managed developers, presented to leadership, authored research reports.

VENTURES FOUNDED

Examples of ventures I founded and my associated contributions:

Dimples, Inc. [transitioning] *Founder, Chairman, CEO*

Pittsburgh, Penn., USA and Boston, Mass., USA 2011 – 2019

Print publishers reduce ink consumption by 30% with font algorithms I invented, patented, and commercialized.

- **Product Definition** – Identified target segments within \$24Bn market, designed service, launched product.
- **Executive Leadership** – Recruited and led 10-person team (200 years' combined experience) and 40 indirects.
- **DevOps** – Wrote 100Ks lines of code and architected complex systems, including enterprise distributed systems.
- **Corporate Collaboration** – Established partnerships with entities including Monotype, J&J, Walmart.

WatchTower Robotics née Pipeguard [active]. *Founder, CEO*

Cambridge, Mass., USA 2017 – 2018

With our leak-detection drones and forecast system, water companies fix pipe leaks months before catastrophic bursts.

- **Tech Transfer** – Worked with lead inventor (MIT PhD), identified market opportunity for latent lab I.P. portfolio.
- **Design for Optionality** – Performed technical and non-technical interviews of SMEs and KOLs in oil, gas, and water industries to formulate tech roadmap and key experiments enabling product offering for sub-industries.
- **Enterprise Analytics** – Won Booz Allen Hamilton Analytics Prize for water analytics platform.

Mad Dog Environmental [acquired]. *Founder, CEO, Head of Research and Design*

Pittsburgh, Penn., USA 2013 – 2015

Our DryAll products protect groundwater by containing Shale Gas Industry waste-stream effluent.

- **Big Data-Driven** – Constructed quantitative models and sensitivity analysis for finance and market forecasting.
- **Lab Leadership** – Established lab, wrote protocols, developed experiment procedures, and led scientists and engineers to develop absorption tech.

Additional ventures I founded and led from conception to seed:

- **Muddy Charles** [active]. *Gorgeous hand-crafted functional art for the Home and Office.*
- **Angel Eye** [acquired]. *Road safety system leveraging advancements in edge computing for the Transportation Industry.*
- **PopArchitexture** [inactive]. *3D architectural modeling services for Education, Tourism, and Geospatial applications.*
- **Self Inspection Company** [acquired]. *Commercial and residential field services for Financial and Insurance Industries.*

TEACHING

MIT Professional Education (Emeritus Institute of Management)

Singapore 05/2019 – present

Lead Facilitator and Course Leader (contractor) for top executive edu. company, on behalf of MIT Professional Education.

- **Machine Learning** – Planned and conducted live engagements with hundreds of participants, prepare and deploy new 8-week course materials, identify and translate latest industry developments for Prof. Devavrat Shah's course.
- **Publishing** – Co-authored case study (2019) for White House Office of Science and Technology Policy, Office of the Vice President. Topic: U.S. DoD Labs' technology development and transfer.
- **Smart Manufacturing** – Led multiple runs of 10-week course with 200 professionals globally. Worked with Prof. Brian Anthony, administrators, fellow subject matter experts, teaching staff, and participants.

MIT Innovation Teams Program

Cambridge, Mass., USA 02/2017 – 06/2018

Lead Assistant and Advisor for "MIT's top course for Entrepreneurship and Innovation" (–Noubar Afeyan, Founder of Flagship Pioneering). Averaging 5 teams per semester and involved for 3 semesters, I worked closely with Prof. Luis Perez-Breva to advise teams and enhance course content. iTeams spinouts include SQZ Biotech, LiquiGlide, Lux Labs, EyeNetra, Manus Bio.

- **Translation Strategy** – Developed asset, IP, and technology plans for 15 materials, analytics, and robotics technologies.
- **Synthesize Complexity** – Inserted into diverse fields, I quickly gained orientation, distilled fundamentals, and guided cross-disciplinary teams in navigating emerging markets.

Saint Francis University

Loretto, Penn., USA 01/2011 – 06/2018

Instructor (adjunct) with joint teaching appointments in the School of Business, School of STEAM, and Continuing Education.

- **Technical and Non-Technical** – Developed and taught courses such as Decision Analysis with Models and Algorithms, Statistics, System Analysis and Design, Database Design and Management.
- **F2F, Blended, Online** – Led development of new interpretations of courses in varied teaching environments for a span of student demographics, from exemplary K-12 students through to executive education and adult education.

EDUCATION

Massachusetts Institute of Technology, MSc, Engineering, Management, and Design

Cambridge, Mass., USA 2019

Sloan Healthcare Club Member, NASA Finalist, Sandbox Fund Mentor, Venture Capital Club Member, Management Consulting Club Organizer.

Relevant Courses: Medical Device Design, Applied Machine Learning, Product Design and Development, Human-Factors Engineering, Global Entrepreneurship Lab, Commercializing Science (HBS), Entrepreneurial Finance (HBS)

Saint Francis University, MBA, BS (Math/C.S.), BA (Chemistry)

Loretto, Penn., USA 2010 (MBA), 2008 (BS, BA)

Concentration: Management Information Systems. Founder's Scholar (#1 of 2K students), President's Advisory Council.

Relevant courses: Quantum Physics, Physical Chem, InfoSec, Cybersecurity, advanced Computer Science studies

SERVICE, HONORS, & ACTIVITIES

Groups: Design Management Institute (Fellow), Design For America, A.I. Ethics Committee, MIT Corporation Nominee, Sloan Blockchain, YTI Career Institute Information Technology Advisor

Service: *Mentor* for NexCubed Digital Health accelerator, *Mentor* for MIT Hacking Medicine, *Mentor* for Design for America, *African drummer* (djembe/bougarabou) for World Drumming Ensemble, 3° F&AM

Honors: GapSummit Top 100 Biotech Leaders of Tomorrow, Booz Allen Analytics Prize Winner (#1 of 150), MIT Solver (1 of 40 globally), Albert Fellowship (1 of 2 at MIT), Forbes 30 Under 30 Nominee

Hobbies: marathon barefoot runner, concert saxophonist (12 years), Private Pilot License student, crypto investor, involuntary handyman

PUBLICATIONS

Writings

Author/Co-Author of 18 publications on Venture Capital, Government Contracting, Medical Device Design, Innovation Ecosystems, Systems Architecture, Applied R&D, and Programming. Examples: (reverse chronology, not exhaustive)

- *Who's Your Ally? How Tech Startups Navigate Venture Capital and Federal Funding*. **Jonathan B. Miller**. MIT Innovation Initiative. 2020.
- *Development of a Long-Acting Direct-Acting Antiviral System for Hepatitis C Virus Treatment in Swine*. Verma et al (co-author: **Jonathan B. Miller**). Proceedings of the National Academies of Sciences. 2020. [Note: Researched funded in-part by the Bill & Melinda Gates Foundation]
- *Orpheus: A Novel Approach to Lunar Surface Access Utilizing the NASA Lunar Gateway*. Magliarditi et al (co-author: **Jonathan Miller**). 70th International Astronautical Congress. October 25, 2019.
- *NSWC Crane Innovation Analysis: Contributing to Regional Innovation Ecosystems*. Kathryn Person, Dylan Cohen, **Jonathan Miller**, Fiona Murray. MIT Innovation Initiative. May 17, 2019.
- *Development of a gastric resident system for prolonged gram-level dosing: Towards improving adherence to tuberculosis treatment*. Verma et al (co-author: **Jonathan B. Miller**). Science Translational Medicine. 2019. [Note: Researched funded in-part by the Bill & Melinda Gates Foundation]
- *Learn Ruby on Rails*. Daniel Kehoe (contributor: **Jonathan B. Miller**). RailsApps. 1st Edition. 2013.

Theses

Author of theses on Medical Device Design, Computational Chemistry, 3D Geospatial Modeling, and Philanthropy. For example, my MIT graduate thesis was:

On-Patient Medical Information Encoding: Image Guided Fistula Cannulation Assistant for Hemodialysis. **Jonathan B. Miller**, advised by Prof. Warren Seering and Nevan C. Hanamura. Precision Engineering Research Group. MIT, Department of Mechanical Engineering, Cambridge, Massachusetts. June 2019.

Invented “temporary tattoos” for image guidance for hemodialysis needle insertion, involving infrared illumination of hemoglobin, de-distortion and mapping of vein images, and special ink chemistry inspired by temporary tattoos.

Patents and Disclosures

- *On-Patient Medical Information Encoding*, US62/809865 pending (filed 2019): Means of durable placement of clinically relevant data on an organism's skin.
- *Methods for Efficient Use of Consumables in Analogue Materials and Digital Devices*, US15/013610 pending (filed 2015): Significantly improved the consumables efficiency of digital displays and two- and three-dimensional printing.
- *Liquid Solidification Compound*, US61/994119, pending (filed 2014): Developed mixture spectrum for stabilizing liquids to pass Environmental Protection Agency's Method 9095B, the Paint Filter Liquids Test.
- *Liquid Immobilization Using Additive Solidification Framework Process*, US61/857916, pending (filed 2013): Engineered system for minimizing environmental impact of gas field liquid and semi-liquid byproducts.
- *Print Compound Conserving Font Production Method*, US8467082, issued 2013: Invented processes for generating ink- and toner-saving font overlays.

In the News

My work has appeared in publications and conferences incl. *Proceedings of the National Academies of Sciences*, *Science Translational Medicine*, *International Astronautical Congress*, *MIT News*, *Engadget*, *Gizmodo*, and *New Atlas*.