



Joshua Makower

Yock Family Professor and Professor of Bioengineering
Medicine - Cardiovascular Medicine

CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Dr. Josh Makower is The Yock Family Professor of Medicine and of Bioengineering at the Stanford University Schools of Medicine and Engineering and the Director of the Stanford Byers Center for Biodesign, the program he co-founded with Dr. Paul Yock twenty years ago. Josh helped create the fundamental structure of the Center's core curriculum and is the chief architect of what is now called "The Biodesign Process." Over the past 20 years since Josh and Paul founded Biodesign, this curriculum and the associated textbook has been used at Stanford and across the world to train hundreds of thousands of students, faculty and industry leaders on the Biodesign process towards the advancement of medical innovation for the improvement of patient care. Josh has practiced these same techniques directly as the Founder & Executive Chairman of ExploraMed, a medical device incubator, creating 10 companies since 1995. Transactions from the ExploraMed portfolio include NeoTract, acquired by Teleflex, Acclarent, acquired by J&J, EndoMatrix, acquired by C.R. Bard & TransVascular, acquired by Medtronic. Other ExploraMed/NEA ventures include Moximed, Revella Aesthetics, X9 and Willow. Josh is also a Senior Advisors to Patient Square Capital, and an Advisory Venture Partner with Sofinnova Partners. Josh serves on the boards of Elevage, VentureWell, Revella Aesthetics, ExploraMed, Moximed, Willow, X9 and Coravin. Josh holds over 300 patents and patent applications. He received an MBA from Columbia University, an MD from the NYU School of Medicine, a bachelor's degree in Mechanical Engineering from MIT. Josh is a Member of the National Academy of Engineering, a Fellow of The National Academy of Inventors and The American Institute for Medical and Biological Engineering, and was awarded the Coulter Award for Healthcare Innovation by the Biomedical Engineering Society in 2018.

ACADEMIC APPOINTMENTS

- Professor - University Medical Line, Medicine - Cardiovascular Medicine
- Professor - University Medical Line, Bioengineering
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Wu Tsai Human Performance Alliance

ADMINISTRATIVE APPOINTMENTS

- Byers Family Director, Center for Biodesign, (2024- present)
- Executive Chairman & Founder, ExploraMed, Inc., (1995- present)

- Senior Advisor, Patient Square Capital, (2024- present)
- Board of Directors, Elevage Ventures, (2024- present)
- Advisory Venture Partner, Sofinnova Partners, (2024- present)
- Chairman of the Board & Founder, Moximed, Inc., (2007- present)
- Board of Directors & Founder, Revelle Aesthetics, (2019- present)
- Executive Chairman & Founder, Willow Innovations, (2014- present)
- Board of Directors and Co-Founder, Coravin, Inc., (2002- present)
- Board of Directors, Allay Therapeutics, (2016-2024)
- Special Partner, NEA, (2003-2024)
- Board of Directors, Setpoint Medical, Inc., (2017-2024)
- Chairman of the Board of Directors, Eargo, Inc., (2015-2023)
- Chairman of the Board of Directors, DOTS Technologies, (2015-2023)
- Board of Directors, Intrinsic Therapeutics, Inc., (2000-2022)

HONORS AND AWARDS

- Fellow, National Academy of Inventors (2023)
- Member, National Academy of Engineering (2021)
- Coulter Award for Healthcare Innovation, Biomedical Engineering Society (2018)
- Member of the College of Fellows, The American Institute for Medical and Biological Engineering (2017)
- M.I.T. Award for Excellence in Undergraduate Teaching, M.I.T. (1985)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Board of Directors, VentureWell (2023 - present)
- Fellow, National Academy of Inventors (2023 - present)
- Member, National Academy of Engineering (2021 - present)
- Member, College of Fellows of the American Institute of Medical and Biological Engineering (2019 - present)

PROFESSIONAL EDUCATION

- MBA, Columbia University , Business (1993)
- M.D., NYU School of Medicine , Medicine (1989)
- S.B., M.I.T. , Mechanical Engineering (1985)

PATENTS

- Joshua Makower, et al. "United States Patent 10,702,295 Methods and apparatus for treating disorders of the ear nose and throat", Acclarent, Inc.
- Joshua Makower, et al. "United States Patent 10,702,371 Absorber designs for implantable device", MOXIMED, INC.
- Joshua Makower, et al. "United States Patent 10,716,709 Silent effusion removal", Acclarent, Inc.
- Joshua Makower, et al. "United States Patent 10,722,624 Breast pump assembly with breast adapter", ExploraMed NC7, Inc.
- Joshua Makower, et al. "United States Patent 10,736,746 Extra-articular implantable mechanical energy absorbing systems", MOXIMED, INC.
- Joshua Makower, et al. "United States Patent 11,013,527 Cellulite treatment system and methods", NC8, Inc.

LINKS

- Stanford Biodesign: <http://biodesign.stanford.edu>

- ExploraMed: <http://www.exploramed.com>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Dr. Josh Makower is the Boston Scientific Applied Bioengineering Professor of Medicine and of Bioengineering at the Stanford University Schools of Medicine and Engineering and the Director of the Stanford Byers Center for Biodesign, the program he co-founded with Dr. Paul Yock twenty years ago. Josh helped create the fundamental structure of the Center's core curriculum and is the chief architect of what is now called "The Biodesign Process." Over the past 20 years since Josh and Paul founded Biodesign, this curriculum and the associated textbook has been used at Stanford and across the world to train hundreds of thousands of students, faculty and industry leaders on the Biodesign process towards the advancement of medical innovation for the improvement of patient care. Josh has practiced these same techniques directly as the Founder & Executive Chairman of ExploraMed, a medical device incubator, creating 9 companies since 1995. Transactions from the ExploraMed portfolio include NeoTract, acquired by Teleflex, Acclarent, acquired by J&J, EndoMatrix, acquired by C.R. Bard & TransVascular, acquired by Medtronic. Other ExploraMed/NEA ventures include Moximed, NC8 and Willow. Josh is also a Special Partner at NEA where he supports the healthcare team and medtech/healthtech investing practice. Josh serves on the boards of Allay Therapeutics, Revella Aesthetics, Setpoint Medical, DOTS Technologies, Eargo, ExploraMed, Intrinsic Therapeutics, Moximed, Willow and Coravin. Josh holds over 300 patents and patent applications. He received an MBA from Columbia University, an MD from the NYU School of Medicine, a bachelor's degree in Mechanical Engineering from MIT. Josh is a Member of the National Academy of Engineering and the College of Fellows of The American Institute for Medical and Biological Engineering and was awarded the Coulter Award for Healthcare Innovation by the Biomedical Engineering Society in 2018.

Teaching

COURSES

2022-23

- Biodesign Innovation: Concept Development and Implementation: BIOE 374B, ME 368B, MED 272B (Spr)
- Biodesign Innovation: Concept Development and Implementation: OIT 385 (Spr)
- Biodesign Innovation: Needs Finding and Concept Creation: BIOE 374A, ME 368A, MED 272A (Win)
- Biodesign Innovation: Needs Finding and Concept Creation: OIT 384 (Win)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

John Chukwuemeka Amamdi, Marta Arenas Jal, Cyan Brown, Kevin Cyr, Jonathan Freise, Rani Kronenberger, Jorge Mena, Justin Penny, Ignacio Andres Perez Romero, Shirin Sadri, Paul Schmiedmayer, Samantha Seneca, Mathias Vissers, Bingyi Wang

Postdoctoral Research Mentor

Paul Schmiedmayer

Publications

PUBLICATIONS

- **Time From Authorization by the US Food and Drug Administration to Medicare Coverage for Novel Technologies.** *JAMA health forum* Sexton, Z. A., Perl, J. R., Saul, H. R., Trotsyuk, A. A., Pietzsch, J. B., Ruggles, S. W., Nikolov, M. C., Schulman, K. A., Makower, J. 2023; 4 (8): e232260
- **Need Statements in Healthcare Innovation.** *Annals of biomedical engineering* Mokarram, N., Denend, L., Lyon, J., Rait, D., Brinton, T., Makower, J., Yock, P.

2021

- **Inspiration, Perspiration, and Perseverance: An Innovator's Perspective** *MEDICAL INNOVATION: CONCEPT TO COMMERCIALIZATION*
Makower, J., Denend, L., Behrns, K. E., Gingles, B., Sarr, M. G.
2018; 251–60
- **Needs-Based Innovation in Interventional Radiology: The Biodesign Process** *TECHNIQUES IN VASCULAR AND INTERVENTIONAL RADIOLOGY*
Steinberger, J. D., Denend, L., Azagury, D. E., Brinton, T. J., Makower, J., Yock, P. G.
2017; 20 (2): 84–89
- **Inspiration, perspiration, and execution: An innovator's perspective** *SURGERY*
Makower, J.
2017; 161 (5): 1187-1190
- **Biodesign: The Process of Innovating Medical Technologies**
Zenios, S., Makower, J., Yock, P., et al
Cambridge University Press.2015
- **Outcomes from a Postgraduate Biomedical Technology Innovation Training Program: The First 12 Years of Stanford Biodesign** *ANNALS OF BIOMEDICAL ENGINEERING*
Brinton, T. J., Kurihara, C. Q., Camarillo, D. B., Pietzsch, J. B., Gorodsky, J., Zenios, S. A., Doshi, R., Shen, C., Kumar, U. N., Mairal, A., Watkins, J., Popp, R. L., Wang, et al
2013; 41 (9): 1803-1810
- **A Role for Entrepreneurs An Observation on Lowering Healthcare Costs via Technology Innovation** *AMERICAN JOURNAL OF PREVENTIVE MEDICINE*
Gottlieb, S., Makower, J.
2013; 44 (1): S43-S47
- **Applying a Structured Innovation Process to Interventional Radiology: A Single-Center Experience** *JOURNAL OF VASCULAR AND INTERVENTIONAL RADIOLOGY*
Sista, A. K., Hwang, G. L., Hovsepian, D. M., Sze, D. Y., Kuo, W. T., Kothary, N., Louie, J. D., Yamada, K., Hong, R., Dhanani, R., Brinton, T. J., Krummel, T. M., Makower, et al
2012; 23 (4): 488-494
- **FDA Impact on U.S. Medical Technology Innovation: A Survey of Over 200 Medical Technology Companies.**
Makower, J., Meer, A., Denend, L.
AdvaMed and the National Venture Capital Association.
2010
- **Biodesign: The Process of Innovating Medical Technologies**
Yock, P., Zenios, S., Makower, J., et al
Cambridge.2009
- **Inventing our future: training the next generation of surgeon innovators.** *Seminars in pediatric surgery*
Krummel, T. M., Gertner, M., Makower, J., Milroy, C., Gurtner, G., Woo, R., Riskin, D. J., Binyamin, G., Connor, J. A., Mery, C. M., Shafi, B. M., Yock, P. G.
2006; 15 (4): 309-318
- **Principles of Innovation** *Interventional Cardiology*
Makower, J., Nayak, A.,
2006; Chapter 71
- **Percutaneous transvenous cellular cardiomyoplasty - A novel nonsurgical approach for myocardial cell transplantation** *JOURNAL OF THE AMERICAN COLLEGE OF CARDIOLOGY*
Thompson, C. A., Nasser, B. A., Makower, J., Houser, S., McGarry, M., Lamson, T., Pomerantseva, I., Chang, J. Y., Gold, H. K., Vacanti, J. P., Oesterle, S. N.
2003; 41 (11): 1964-1971
- **Percutaneous in-situ coronary venous arterialization (PICVA) improves survival in response to acute ischemia in the porcine model**

Oesterle, S. N., Yeung, A. C., Lo, S., Virmani, R., Van Bibber, R., Flaherty, J. C., Lamson, T. C., Kim, S. W., Garibotto, J. T., Tumas, M. W., Makower, J.

ELSEVIER SCIENCE INC.2000: 61A-61A

- **New Approaches and Conduits: In Situ Venous Arterialization and Coronary Artery Bypass.** *Current interventional cardiology reports*
Fitzgerald, Hayase, Yeung, Virmani, Robbins, Burkhoff, Makower, Yock, OESTERLE
1999; 1 (2): 127-137
- **The Characterization of the Dexterous Hand Master Index Finger in Flexion and Extension** *The Association for the Advancement of Medical Instrumentation*
Makower, J., Parnianpour, M., Nordin, M.
1990; May: 61
- **The Validity Assessment of the Dexterous Hand Master: A Linkage System for the Measurement of Joints in the Hand** *The Annals of Biomedical Engineering and Biomedical Instrumentation and Technology*
Makower, J., Parnianpour, M., Nordin, M.
1990; August