Stanford

Ross Daniel Venook

Lecturer, Bioengineering

Bioengineering

Bio

BIO

Ross is a Senior Lecturer in the Bioengineering department and he is the Associate Director for Engineering at the Stanford Byers Center for Biodesign.

Ross primarily co-leads undergraduate laboratory courses at Stanford—an instrumentation lab (BIOE123) and an open-ended capstone design lab sequence (BIOE141A/B)—and he supports other courses and runs hands-on workshops in the areas of prototyping and systems engineering related to medical device innovation. He enjoys the unique challenges and constraints offered by biomedical engineering projects, and he delights in the opportunity for collaborative learning in a problem-solving environment.

An Electrical Engineer by training (Stanford BS, MS, PhD), Ross' graduate work focused on building and applying new types of MRI hardware for interventional and device-related uses. Following a Biodesign Innovation fellowship, Ross helped to start the MRI safety program at Boston Scientific Neuromodulation, where he worked for 15 years to enable safe MRI access for patients with implanted medical devices--including collaboration across the MRI safety community to create and improve international standards.

ACADEMIC APPOINTMENTS

- Lecturer, Bioengineering
- Senior Lecturer, Bioengineering
- Member, Cardiovascular Institute
- Member, Wu Tsai Neurosciences Institute

LINKS

- BIOE141 Capstone Course: http://biodesign.stanford.edu/programs/stanford-courses/biodesign-capstone.html

Teaching

COURSES

2025-26

- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Evidence-Based Approaches in Effective Teaching & Research Mentorship: BIOE 296 (Spr)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)

- Senior Capstone Design II: BIOE 141B (Win)

2024-25

- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Evidence-Based Approaches in Effective Teaching & Research Mentorship: BIOE 296 (Spr)
- Needs Finding in Healthcare: BIOE 10SC (Sum)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

2023-24

- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Needs Finding in Healthcare: BIOE 10SC (Sum)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Promoting Effective and Equitable Teaching in Bioengineering: BIOE 296 (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

2022-23

- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Needs Finding in Healthcare: BIOE 10SC (Sum)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Promoting Effective and Equitable Teaching in Bioengineering: BIOE 296 (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

Publications

PUBLICATIONS

- **Prototyping the Need: Using Prototyping Early in the Design Process to Strengthen Understanding of the Need and Increase Student Engagement.** *Biomedical engineering education*
  Nerurkar, M., Denend, L., Venook, R., Pamnani, R. D., Towles, J., Azagury, D.
  2026; 6 (1): 211-216
- **CardinalKit: open-source standards-based, interoperable mobile development platform to help translate the promise of digital health.** *JAMIA open*
  Aalami, O., Hittle, M., Ravi, V., Griffin, A., Schmiedmayer, P., Shenoy, V., Gutierrez, S., Venook, R.
  2023; 6 (3): ooad044
- **Lessons from Developing Multimedia Learning Materials for the Digital Generation** *Biomedical Engineering Education*
  Herrmann, J. E., Spielman, S., Venook, R., Yock, P., Denend, L.
  2023
- **Using an Accelerated Undergraduate Needs Finding Course to Build Skills, Inspire Confidence, and Promote Interest in Health Technology Innovation.** *Biomedical engineering education*
  Denend, L., Spielman, S., Venook, R., Pamnani, R. D., Camarillo, D., Wall, J., Towles, J.
  2023; 3 (2): 319-329
- **Utilising low-cost, easy-to-use microscopy techniques for early peritonitis infection screening in peritoneal dialysis patients.** *Scientific reports*
  Buckup, M., Kaneda, J. M., Birk, A. M., Glockner, E., Venook, R., Jain, A., Sharma, S., Wong, C., Sutha, K.

2022; 12 (1): 14046

- **A LOW-COST IN-LINE DEVICE FOR EARLY SCREENING OF PERITONITIS IN PERITONEAL DIALYSIS PATIENTS**
  Kaneda, J., Birk, A., Buckup, M., Glockner, E., Venook, R., Sutha, K.
  W B SAUNDERS CO-ELSEVIER INC.2021: 610
- **Modified full-face snorkel masks as reusable personal protective equipment for hospital personnel.** *PloS one*
  Kroo, L., Kothari, A., Hannebelle, M., Herring, G., Pollina, T., Chang, R., Peralta, D., Banavar, S. P., Flaum, E., Soto-Montoya, H., Li, H., Combes, K., Pan, et al
  2021; 16 (1): e0244422
- **Novel Neonatal Umbilical Catheter Protection and Stabilization Device in In vitro Model of Catheterized Human Umbilical Cords: Effect of Material and Venting on Bacterial Colonization.** *American journal of perinatology*
  Wood, L. S., Fuerch, J. H., Dambkowski, C. L., Chehab, E. F., Torres, S., Shih, J. D., Venook, R., Wall, J. K.
  2019
- **The Impact of Postgraduate Health Technology Innovation Training: Outcomes of the Stanford Biodesign Fellowship** *ANNALS OF BIOMEDICAL ENGINEERING*
  Wall, J., Hellman, E., Denend, L., Rait, D., Venook, R., Lucian, L., Azagury, D., Yock, P. G., Brinton, T. J.
  2017; 45 (5): 1163-1171
- **An Optically Coupled System for Quantitative Monitoring of MRI-Induced RF Currents Into Long Conductors** *IEEE TRANSACTIONS ON MEDICAL IMAGING*
  Zanchi, M. G., Venook, R., Pauly, J. M., Scott, G. C.
  2010; 29 (1): 169-178
- **Three-dimensional prepolarized magnetic resonance imaging using rapid acquisition with relaxation enhancement** *MAGNETIC RESONANCE IN MEDICINE*
  Matter, N. I., Scott, G. C., Venook, R. D., Ungersma, S. E., Grafendorfer, T., Macovski, A., Conolly, S. M.
  2006; 56 (5): 1085-1095
- **Prepolarized magnetic resonance imaging around metal orthopedic implants** *MAGNETIC RESONANCE IN MEDICINE*
  Venook, R. D., Matter, N. I., Ramachandran, M., Ungersma, S. E., Gold, G. E., Giori, N. J., Macovski, A., Scott, G. C., Conolly, S. M.
  2006; 56 (1): 177-186
- **Magnetic resonance imaging with T-1 dispersion contrast** *MAGNETIC RESONANCE IN MEDICINE*
  Ungersma, S. E., Matter, N. I., Hardy, J. W., Venook, R. D., Macovski, A., Conolly, S. M., Scott, G. C.
  2006; 55 (6): 1362-1371
- **Dual in vivo magnetic resonance evaluation of magnetically labeled mouse embryonic stem cells and cardiac function at 1.5 T** *MAGNETIC RESONANCE IN MEDICINE*
  Arai, T., Kofidis, T., Bulte, J. W., de Bruin, J., Venook, R. D., Berry, G. J., McConnell, M. V., Quertermous, T., Robbins, R. C., Yang, P. C.
  2006; 55 (1): 203-209
- **Automatic tuning of flexible interventional RF receiver coils** *MAGNETIC RESONANCE IN MEDICINE*
  Venook, R. D., Hargreaves, B. A., Gold, G. E., Conolly, S. M., Scott, G. C.
  2005; 54 (4): 983-993