

# Stanford

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## Ross Daniel Venook

Lecturer, Bioengineering

Bioengineering

Bioengineering

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### Bio

#### BIO

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

Ross co-leads three undergraduate 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 continues working across the MRI safety community to create and improve international standards and to enable safe MRI access for patients with implanted medical devices.

#### ACADEMIC APPOINTMENTS

- Lecturer, Bioengineering
- Senior Lecturer, Bioengineering
- Member, Cardiovascular Institute

#### LINKS

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

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### Teaching

#### COURSES

##### 2021-22

- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

##### 2020-21

- Biodesign Innovation: Needs Finding and Concept Creation: BIOE 374A (Win)

- Biodesign Innovation: Needs Finding and Concept Creation: OIT 384 (Win)
- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Sum)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

#### 2019-20

- Bioengineering Departmental Research Colloquium: BIOE 393 (Aut)
- Bioengineering Systems Prototyping Lab: BIOE 123 (Win)
- Pathophysiology and Design for Cardiovascular Disease: BIOE 72N (Spr)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

#### 2018-19

- Biomedical System Prototyping Lab: BIOE 123 (Win)
- Educational Practice in Bioengineering: BIOE 296 (Aut)
- Senior Capstone Design I: BIOE 141A (Aut)
- Senior Capstone Design II: BIOE 141B (Win)

## Publications

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### PUBLICATIONS

- **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