



## Stephen Ma

Clinical Assistant Professor, Medicine

### CLINICAL OFFICE (PRIMARY)

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### Bio

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#### BIO

Stephen Ma is a Clinical Assistant Professor in the Division of Hospital Medicine at Stanford University School of Medicine. His undergraduate degree was in Electrical Engineering at Princeton University, after which he pursued his MD/PhD at Columbia University. He then moved to Stanford University for his residency in Internal Medicine and fellowship in Clinical Informatics prior to joining the faculty. His clinical expertise is in the care of adult patients admitted to the inpatient general medicine services.

He is fellowship-trained in clinical informatics with the following areas of focus: 1) the implementation and evaluation of emerging technologies such as ambient AI scribes, 2) clinician-centered analytics and reporting, 3) the development of machine learning algorithms and workflows for standardization of care, and 4) care team communication and on-call scheduling. His overall approach to technology integration into healthcare emphasizes user-centered design, data-driven decision making, and rigorous demonstration of outcomes.

He previously performed his doctoral work in the laboratory of Professor Gordana Vunjak-Novakovic where he developed human cardiac models of disease incorporating patient-derived stem cells, optogenetics, tissue engineering, optoelectronics, and video processing.

#### CLINICAL FOCUS

- Internal Medicine
- Clinical Informatics
- Machine Learning
- Digital Health

#### ACADEMIC APPOINTMENTS

- Clinical Assistant Professor, Medicine

#### HONORS AND AWARDS

- Stanford Pediatrics Fellow Scholarship Award, Stanford University (2023)

- Robert G. Bertsch Prize in Surgery, Columbia University Vagelos College of Physicians and Surgeons (2019)
- Izard Prize in Cardiology, Columbia University Vagelos College of Physicians and Surgeons (2019)
- Ruth L. Kirschstein National Research Service Award (NRSA) Individual Predoctoral Fellowship (F30), NIH (2016)
- Sigma Xi Book Award for Undergraduate Research, Princeton University (2011)

## PROFESSIONAL EDUCATION

- Fellowship: Stanford University Clinical Informatics Fellowship (2024) CA
- Board Certification: Internal Medicine, American Board of Internal Medicine (2022)
- Residency: Stanford University Internal Medicine Residency (2022) CA
- Medical Education: Columbia University College of Physicians and Surgeons (2019) NY
- PhD, Columbia University , Biomedical Engineering (2018)
- BSE, Princeton University , Electrical Engineering (2011)

## PATENTS

- "United States Patent 11299714 ENGINEERED ADULT-LIKE HUMAN HEART TISSUE", Apr 12, 2022
- "United States Patent 1126143 BIOREACTOR SYSTEM FOR ENGINEERING TISSUES", Mar 1, 2022
- "United States Patent Application 17118766 SYSTEM AND METHODS FOR OPTOGENETIC EVALUATION OF HUMAN NEUROMUSCULAR FUNCTION", Jun 17, 2021

## Teaching

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### GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Clinical Informatics (Fellowship Program)

## Publications

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### PUBLICATIONS

- **Clinical entity augmented retrieval for clinical information extraction.** *NPJ digital medicine*  
Lopez, I., Swaminathan, A., Vedula, K., Narayanan, S., Nateghi Haredasht, F., Ma, S. P., Liang, A. S., Tate, S., Maddali, M., Gallo, R. J., Shah, N. H., Chen, J. H.  
2025; 8 (1): 45
- **Ambient artificial intelligence scribes: utilization and impact on documentation time.** *Journal of the American Medical Informatics Association : JAMIA*  
Ma, S. P., Liang, A. S., Shah, S. J., Smith, M., Jeong, Y., Devon-Sand, A., Crowell, T., Delahaie, C., Hsia, C., Lin, S., Shanafelt, T., Pfeffer, M. A., Sharp, et al  
2024
- **Ambient artificial intelligence scribes: physician burnout and perspectives on usability and documentation burden.** *Journal of the American Medical Informatics Association : JAMIA*  
Shah, S. J., Devon-Sand, A., Ma, S. P., Jeong, Y., Crowell, T., Smith, M., Liang, A. S., Delahaie, C., Hsia, C., Shanafelt, T., Pfeffer, M. A., Sharp, C., Lin, et al  
2024
- **Recommendations for Clinicians, Technologists, and Healthcare Organizations on the Use of Generative Artificial Intelligence in Medicine: A Position Statement from the Society of General Internal Medicine.** *Journal of general internal medicine*  
Crowe, B., Shah, S., Teng, D., Ma, S. P., DeCamp, M., Rosenberg, E. I., Rodriguez, J. A., Collins, B. X., Huber, K., Karches, K., Zucker, S., Kim, E. J., Rotenstein, et al  
2024
- **"Covering provider": an effort to streamline clinical communication chaos.** *JAMIA open*  
Joshi, M., Gokhale, A., Ma, S., Pendrey, A., Wozniak, L., Moturu, A., Schwartz, N. U., Wilson, A., Darmawan, K., Phillips, B., Cullum, S., Sharp, C., Brown, et al

2024; 7 (3): o0ae057

- **Electronic Phenotyping of Urinary Tract Infections as a Silver Standard Label for Machine Learning.** *AMIA Joint Summits on Translational Science proceedings. AMIA Joint Summits on Translational Science*  
Ma, S. P., Hosgur, E., Corbin, C. K., Lopez, I., Chang, A., Chen, J. H.  
2024; 2024: 182-189
- **The promises and limitations of artificial intelligence for quality improvement, patient safety, and research in hospital medicine.** *Journal of hospital medicine*  
Ma, S. P., Rohatgi, N., Chen, J. H.  
2024
- **Artificial Intelligence-Generated Draft Replies to Patient Inbox Messages.** *JAMA network open*  
Garcia, P., Ma, S. P., Shah, S., Smith, M., Jeong, Y., Devon-Sand, A., Tai-Seale, M., Takazawa, K., Clutter, D., Vogt, K., Lugtu, C., Rojo, M., Lin, et al  
2024; 7 (3): e243201
- **Using Case Mix Index within Diagnosis-Related Groups to Evaluate Variation in Hospitalization Costs at a Large Academic Medical Center.** *AMIA ... Annual Symposium proceedings. AMIA Symposium*  
Pi, S., Masterson, J., Ma, S. P., Corbin, C. K., Milstein, A., Chen, J. H.  
2023; 2023: 1201-1208
- **Targeting Repetitive Laboratory Testing with Electronic Health Records-Embedded Predictive Decision Support: A Pre-Implementation Study.** *Clinical biochemistry*  
Rabbani, N., Ma, S. P., Li, R. C., Winget, M., Weber, S., Boosi, S., Pham, T. D., Svec, D., Shieh, L., Chen, J. H.  
2023
- **Bioengineered optogenetic model of human neuromuscular junction** *BIOMATERIALS*  
Vila, O. F., Chavez, M., Ma, S. P., Yeager, K., Zhuludeva, L., Colon-Mercado, J. M., Qu, Y., Nash, T. R., Lai, C., Feliciano, C. M., Carter, M., Kamm, R. D., Judge, et al  
2021; 276: 121033
- **Engineering of human cardiac muscle electromechanically matured to an adult-like phenotype** *NATURE PROTOCOLS*  
Ronaldson-Bouchard, K., Yeager, K., Teles, D., Chen, T., Ma, S., Song, L., Morikawa, K., Wobma, H. M., Vasciaveo, A., Ruiz, E. C., Yazawa, M., Vunjak-Novakovic, G.  
2019; 14 (10): 2781-2817
- **Quantification of human neuromuscular function through optogenetics** *THERANOSTICS*  
Vila, O. F., Uzel, S. M., Ma, S. P., Williams, D., Pak, J., Kamm, R. D., Vunjak-Novakovic, G.  
2019; 9 (5): 1232-1246
- **Advanced maturation of human cardiac tissue grown from pluripotent stem cells** *NATURE*  
Ronaldson-Bouchard, K., Ma, S. P., Yeager, K., Chen, T., Song, L., Sirabella, D., Morikawa, K., Teles, D., Yazawa, M., Vunjak-Novakovic, G.  
2018; 556 (7700): 239-+
- **Dual IFN-gamma/hypoxia priming enhances immunosuppression of mesenchymal stromal cells through regulatory proteins and metabolic mechanisms.** *Journal of immunology and regenerative medicine*  
Wobma, H. M., Kanai, M., Ma, S. P., Shih, Y., Li, H. W., Duran-Struuck, R., Winchester, R., Goeta, S., Brown, L. M., Vunjak-Novakovic, G.  
2018; 1: 45-56
- **Optogenetics for the Maturation of hiPS-CMs**  
Shen, C. Y., Ma, S. P., White, E. C., Vila, O. F., Chen, T. H., Yeager, K., Vunjak-Novakovic, G.  
MARY ANN LIEBERT, INC.2017: S156-S157
- **Real-Time Bioluminescence Imaging of Cell Distribution, Growth, and Differentiation in a Three-Dimensional Scaffold Under Interstitial Perfusion for Tissue Engineering** *TISSUE ENGINEERING PART C-METHODS*  
Vila, O. F., Garrido, C., Cano, I., Guerra-Rebollo, M., Navarro, M., Meca-Cortes, O., Ma, S. P., Engel, E., Rubio, N., Blanco, J.  
2016; 22 (9): 864-872
- **Protection of Organ Vasculature By Endothelial Overexpression of HLA-G**  
Wobma, H. M., Ma, S. P., Fang, J., Vasavada, H., Duran-Struuck, R., Winchester, R., Hirschi, K., Vunjak-Novakovic, G.  
ELSEVIER SCIENCE INC.2016: S362

- **Preconditioning Mesenchymal Stem Cells to Improve Transplant Tolerance**

Wobma, H. M., Kanai, M., Ma, S. P., Nakazawa, K. R., Duran-Struuck, R., Li, H., Vunjak-Novakovic, G.  
ELSEVIER SCIENCE INC.2016: S149

- **Tissue-Engineering for the Study of Cardiac Biomechanics** *JOURNAL OF BIOMECHANICAL ENGINEERING-TRANSACTIONS OF THE ASME*

Ma, S. P., Vunjak-Novakovic, G.  
2016; 138 (2): 021010