

# Stanford

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## Rahim Esfandyarpour

Engineering Res Assoc, Biochemistry - Genome Center

### Bio

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#### BIO

Rahim Esfandyarpour received his M.Sc. and Ph.D. in Electrical Engineering from Stanford University in 2010 and 2014 respectively. Currently he is an Engineering Research Associate at Stanford Genome Technology Center, Stanford Biochemistry Department and Stanford Medical School. With a multidisciplinary background, Dr. Esfandyarpour is working with a group of scientists and engineers, working on several cutting-edge research projects in biomedical field. His research covers a broad swath of engineering disciplines, interfacing micro/nanotechnology, nanoscience and nanoelectronics, micro/nanofabrication, micro/nanoscale semiconductors device physics, NEMS and MESM, flexible and wearable technologies, with applications in health monitoring, molecular and cellular detection, and energy harnessing. Specifically, his research at Stanford University focuses on using micro/nanotechnology for biomedical applications by applying innovative engineering solutions to develop next generation technologies that address the major challenges in life science discovery and to bring accessible technology-based solutions to medicine. He has near a decade of extensive experience in development of novel biomedical platforms for variety of biological applications, essential for enabling precision medicine, including early diagnostics and effective treatment of lethal diseases such as cancer.

Dr. Esfandyarpour has authored papers in journals including PNAS, Biotechnology & Bioengineering, Sensors & Actuators B, Biomicrofluidics and Nanotechnology. His work was highlighted in New Scientist, Yahoo News, BBC World Service, Popular Science, Gizmodo, Europa Press, Science Daily, Azonano, Engineer Online, Helthcareitnews, StanfordMedNews, Tech Times, Physics.org, Labnews and several others.

#### EDUCATION AND CERTIFICATIONS

- Doctor of Philosophy, Stanford University , Electrical Engineering (2014)
- Master of Science, Stanford University , Electrical Engineering (2010)

#### PROJECTS

- NanoBioTechnology

#### LINKS

- My Linkedin: <https://www.linkedin.com/in/rahim-esfandyarpour-4b8a9129/>

### Teaching

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#### COURSES

2015-16

- NanoBioTechnology, Nanoscience and Sensing: EE 292G (Win)

### Publications

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#### PUBLICATIONS

- **Multifunctional, inexpensive, and reusable nanoparticle-printed biochip for cell manipulation and diagnosis.** *Proceedings of the National Academy of Sciences of the United States of America*

Esfandyarpour, R., DiDonato, M. J., Yang, Y., Durmus, N. G., Harris, J. S., Davis, R. W.  
2017; 114 (8): E1306-E1315

- **Nanoelectronic three-dimensional (3D) nanotip sensing array for real-time, sensitive, label-free sequence specific detection of nucleic acids.** *Biomedical microdevices*  
Esfandyarpour, R., Yang, L., Koochak, Z., Harris, J. S., Davis, R. W.  
2016; 18 (1): 7-?
- **Surface charge sensing by altering the phase transition in VO<sub>2</sub>** *JOURNAL OF APPLIED PHYSICS*  
Kumar, S., Esfandyarpour, R., Davis, R., Nishi, Y.  
2014; 116 (7)
- **Nanoelectronic impedance detection of target cells.** *Biotechnology and bioengineering*  
Esfandyarpour, R., Javanmard, M., Koochak, Z., Harris, J. S., Davis, R. W.  
2014; 111 (6): 1161-1169
- **Label-free Electronic Detection of Target Cells** *Conference on Microfluidics, BioMEMS, and Medical Microsystems XII*  
Esfandyarpour, R., Javanmard, M., Harris, J., Davis, R. W.  
SPIE-INT SOC OPTICAL ENGINEERING.2014
- **Simulation and fabrication of a new novel 3D injectable biosensor for high throughput genomics and proteomics in a lab-on-a-chip device.** *Nanotechnology*  
Esfandyarpour, R., Esfandyarpour, H., Harris, J. S., Davis, R. W.  
2013; 24 (46): 465301-?
- **Label-free electronic probing of nucleic acids and proteins at the nanoscale using the nanoneedle biosensor** *BIOMICROFLUIDICS*  
Esfandyarpour, R., Javanmard, M., Koochak, Z., Esfandyarpour, H., Harris, J. S., Davis, R. W.  
2013; 7 (4)
- **Microneedle biosensor: A method for direct label-free real time protein detection** *SENSORS AND ACTUATORS B-CHEMICAL*  
Esfandyarpour, R., Esfandyarpour, H., Javanmard, M., Harris, J. S., Davis, R. W.  
2013; 177: 848-855
- **Label-free electronic probing of nucleic acids and proteins at the nanoscale using the nanoneedle biosensor** *Biomicrofluidics*  
Esfandyarpour, R., et al  
2013; 7 (4)