Printing Functional Human Tissue

Shaochen Chen

Program Director , Nanomanufacturing Program Professor and a Pearlie D. Henderson Centennial Endowed Faculty Fellow , Engineering Professor , Nanoengineering, Institute of Engineering in Medicine at UCSD

CURRENT RESEARCH

3-D printing in regenerative medicine

Dr. Shaochen Chen is pushing the frontiers of 3-D printing into phenomenally new territory. For the past few years, large companies with vast R&D resources - like Boeing, GE, and Honeywell - have all begun to manufacture some of their parts using this new technique. Dr. Chen, however, is going one step further by printing biomaterials such as functional human tissue. His laboratory, made up of a small team of researchers at UCSD, is directing its attention towards nanomaterials, bioprinting, and tissue engineering in pursuit of a future where materials printed in 3-D can heal wounds, repair damage caused by heart attacks, and make organs for organ replacement.

- 3-D printing of human tissue can be used by directly depositing cells directly onto damaged skin.
- 3-D experimental applications include knee cartilage, heart valves, bone implants, blood vessels and lung tissue.
- Dr. Chen and fellow researchers hope to use printed tissue to make organs for organ replacement and repair damage caused by heart attacks.

Dr. Shaochen Chen believes that we are not far away from growing functional organs. His technology is the fastest 3-D printing in the research world. His work is leading the way in creating applications for tissue engineering, regenerative medicine.

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AFFILIATION

University of California, San Diego

AWARDS

- Fellow, American Association for the Advancement of Science (AAAS), 2011
- Outstanding Paper Award, 2009
- American Institute of Aeronautics and Astronautics (AIAA) Best Paper Award, 2006
- Outstanding Faculty Award from the College of Engineering, 2005

RESEARCH AREAS

Veteran's Causes, Health IT, Technology, Nanotechnology

FUNDING REQUEST

Your donations will support Dr. Chen's groundbreaking research, allowing his laboratory to continue to experiment with 3-D printing and its applications for regenerative medicine. This research will revolutionize the medical industry; allowing pharmaceutical companies to test products on 3-D tissue before investing additional funds in developing clinically viable drugs.