

Medical Devices for Better Health

First spider bite test with Jon Green, UMC, and T Parks, A&A Tech enables first Rx

- Polyclonal ELISA for reliable detection of recluse spider bites
- Therapy of spider bites found by AlphaFold model and ligand docking

Deep learning (DL): Early skin cancer detection with RJ Stanley and JR Hagerty

- Structure-based early melanoma detection, overcomes black-box nature of DL
- Fusion of DL with conventional image processing

ZnO in wound healing with J Park, C-S Kim, H Yang, N Ercal and H Shi

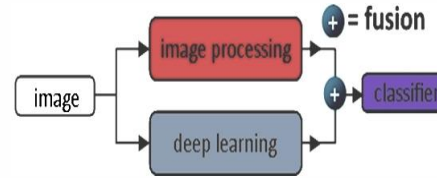
- Determine whether ZnO, antioxidants boosts nanofiber wound healing activity

Smart Bandage with Chang-Soo Kim, Paul Nam, Jason Hagerty

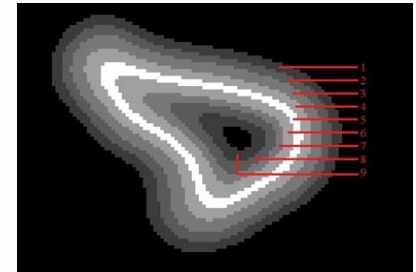
- Tissue oxygen determination with oxygen-quenching reaction
- Smart phone communication

Pheromone-based spider trap with H Shi, J Parks, S&A Tech and C Kristensen, SpiderPharm

- In-vivo monitoring to detect life-cycle spider semiochemicals



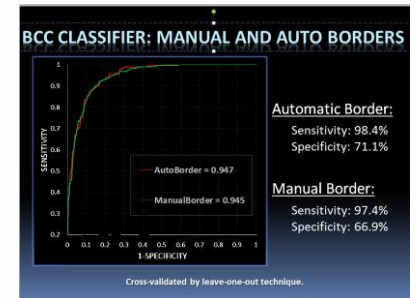
Fusion: classical image processing and deep learning: Hagerty, Stanley, Stoecker



Details of structure detection: MLCs



First determination of N American brown recluse venom structure by AlphaFold, with J Hagerty



Classifier detects the most common skin cancer correctly in most cases.

PoC: William V. "Van" Stoecker, MD, MS, FAAD

Adjunct Assistant Professor, Dermatology
University of Missouri Health Sciences Center

Email: wvs@mst.edu

Phone: 573-364-0122

<https://www.stoeckertech.com>



Funding:

- National Institutes of Health (NCI, NINR, NIAID)
- National Science Foundation

Collaboration: I am interested in applying technology for better health

Keywords:

- Melanoma, Artificial Intelligence, Spider Bites, Loxosceles, Skin Cancer, Fatal Drug Reactions, Smart Bandage, Wound Healing, Pheromones

Recognition:

- Awards:

2019-2021 Best Doctors in America

1994 Co-author, Best Paper of 192 Papers, ANNIE-94, Artificial Neural Networks in Engineering, St. Louis MO

- Patents U.S. 5,037,431, 7,689,016, 7,927,828, 8,426,154, 10,531,825, 10,548,305, 10,874,555