Hanglin Ye

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Education

PhD | Mechanical Engineering

Rensselaer Polytechnic Institute (RPI)
2012-2019

- GPA:3.65
- Research: Scientific data analysis; Machine learning; Artificial intelligence; Statistical Analysis; Tissue properties; Burn classification
- Advisor: Suvranu De

BEng | Civil Engineering

Wuhan University | 2008-2012

Technical Skills

Programming languages

SQL • Python • R • C++ • C • html
bash • FORTRAN

Machine learning

Software:

Matlab • SPSS • Minitab •TensorFlow
G*Power •Microsoft Excel

Open source frameworks:

Pandas • SciPy • NumPy • Matplotlib
Scikit-learn

Algorithms:

SVM • PCA / LDA • Clustering
Regression • Feature selection
Classification Model validation •
Hypothesis testing

General

Tableau • Git • Jupyter • Linux • Mac
NX • Abaqus • COMSOL • Microsoft
Office Tools (PowerPoint, Word,
Outlook) • Latex

Coursera Certifications

Databases and SQL for Data Science
Python for Data Science and AI
Data Analysis with Python
Open Source tools for Data Science
What is Data Science?
Fundamentals of Visualization with
Tableau

Language Skills

English, Chinese Mandarin and
Cantonese

Experience

Graduate Research Assistant | RPI (Aug. 2012 - May 2019)

- *Project 1: Burn degree classification with machine learning*
  - Achieved **92- 99% accuracy** in classifying different burn severities for burnt skins, using the ultrasound image, Raman spectra data with machine learning algorithms (SVM, PLS, *etc.*) and feature selection.
  - Overcame the problem of ultrasound images not being able to differentiate between tissues with various levels of burns
  - Led the collaboration with researchers and surgeons from University at Buffalo and Erie County Medical Center
- *Project 2: Classification of bio- materials*
  - Statistically revealed a significant difference between the real skin tissues and the man-made skin substitutes, using Force-Displacement data, which led to a **~$1M** collaborative project between our lab and the U.S. Army Natick Soldier Research, Development and Engineering Center (NSRDEC)

Publication and Talks

Journal Articles

- Burn-related Collagen Conformational Changes in *ex vivo* Porcine Skin using Raman Spectroscopy. **Ye, H**. *et al.* 2019. ***Scientific Reports*** (Accepted)
- Ultrasound elastography reliably identifies altered mechanical properties of burned soft tissues. **Ye, H.** *et al.* 2018. ***Burns***
- Thermal injury of skin and subcutaneous tissues: A review of experimental approaches and numerical models. **Ye, H.** and De, S. 2017. ***Burns***
- Classification of Burn Severities with Raman Spectroscopy on *ex vivo* Porcine Skin. **Ye, H**. et al. (Under review)
- Ultrasound imaging-based machine learning approach to identify altered characteristics of burned tissue in real time. Lee, S., **Ye, H.**, et al. (Under review)

Conference Presentations

- Annual Conference and Exposition on Experimental and Applied Mechanics, 2019
- 14th US National Congress on Computational Mechanics (USNCCM14), 2017
- Military Health System Research Symposium (MHSRS), 2017

Awards and Recognitions

- Third Rank of People's Scholarship of Wuhan University
- Merit Student of Wuhan University
- First Prize of the National Scholarship of Wuhan University

Teaching and Mentoring Experience

- Graduate Teaching Assistant at RPI (5 Semesters)
- Undergraduate Research Program (URP) mentor at RPI

Other activities

- $1400 award winning adventure game (AVG) developer (2017)
- Internship at Three Gorges Dam hydroelectric system (2011)
- Active member of Society of Women Engineers (SWE) and Chinese Students and Scholars Association (CSSA) in RPI