# Vanderbilt University and Medical Center, Nashville, Tennessee, USA
Post-doctoral Fellowship in Clinical Translational Imaging, Computer Vision, and Skin Mechanics

Position and project description:
A post-doctoral scholar position is available at the Vanderbilt Dermatology Translational Research Clinic (VDTRC.org) and the Vanderbilt University School of Engineering to launch **translational research careers**. We invite motivated candidates to apply their backgrounds in **computer science, data science, engineering, and/or physics** to medical problems in oncology (e.g. stem cell / bone marrow transplantation), rheumatology (e.g. systemic sclerosis), infectious diseases (e.g. mpox) and dermatology (e.g. Stevens-Johnson Syndrome). The goal is to **develop and deploy technologies in our ongoing multicenter trials** to track disease progression and response to treatment. Specific projects are:

1. Analysis of rash images from smartphone and hyperspectral cameras. The scholar will analyze existing 2D and 3D skin images, study sources of variation, and advise prospective collection from collaborating centers including multicenter trials. Technical approaches may include artificial intelligence / deep learning for segmentation and colorimetric analyses, image registration algorithms, traditional image processing, and crowd sourcing. Example of prior results: https://pubmed.ncbi.nlm.nih.gov/35322873/
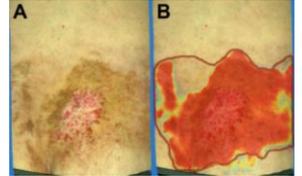
2. Skin mechanics. The scholar will develop and validate a novel handheld clinical device to mechanically measure cutaneous sclerosis. This project will involve ultrasound imaging, study of mechanical vibrations, and clinical measurement. Example of prior results: https://www.nature.com/articles/s41409-018-0346-7

The scholar will lead funded projects and will be encouraged to formulate their own research ideas. They will be provided infrastructure and mentoring for independent funding. Scholars will interact with a broad range of collaborating experts in clinical medicine and technology as well as several innovative partners in industry. Trainees in this well-funded program will enjoy competitive benefits including NIH rate salary.

Environment:
Selected candidates will benefit from a personalized research program catered to their goals utilizing resources and mentoring within Dermatology (Eric Tkaczyk), Infectious Disease / Clinical Pharmacology (Elizabeth Phillips), Rheumatology (Tracy Frech), Computer Science (Benoit Dawant), Bioinformatics (Daniel Fabbri), Biomedical Engineering (Brett Byram and Anita Mahadevan-Jansen). This environment brings together clinicians, basic scientists, engineers and statisticians in close collaboration due to its interdisciplinary research and close physical proximity of the School of Medicine to the School of Engineering (100-200 yards).

Qualifications:
Applicants must have a demonstrated record of rigorous & creative contributions and a capacity to communicate effectively with experts from a range of disciplines. The Vanderbilt University Medical Center is an equal opportunities employer.

Application and contact:
Every applicant should send a CV, a one-page personal statement, and two letters of recommendation with reference phone numbers and email addresses to:

> Eric Tkaczyk, M.D., Ph.D.
> Director, Vanderbilt Dermatology Translational Research Clinic (vdtrc.org)
> One Hundred Oaks Suite 26300
> 719 Thompson Lane, Nashville, TN 37204
> TranslationalResearchClinic@vumc.org