

# Devin R. McCormack

Curriculum Vitae  
2020 Beech Ave Apt A16  
Nashville, TN 37204

## Education

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**Vanderbilt University** – Nashville, TN

**Master of Science:** Biomedical Engineering

Expected July 2014

Thesis: "In vivo hyperspectral imaging of microvessel response to trastuzumab treatment in breast cancer xenografts"

**University of Missouri** – Columbia, MO

**Bachelor of Science:** Biological Engineering *Cum Laude*

May 2011

Minor: Mathematics

Dean's List: Fall 2007, Fall 2008, Spring 2009, 2010-2011.

## Research Experience

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**Graduate Research Assistant**

*Vanderbilt University*

August 2011-Present

Advisor: Dr. Melissa C. Skala

- Developed instrumentation for optical coherence tomography (OCT) and hyperspectral imaging, applied to quantification of blood oxygenation in microvessels.
- Developed advanced automated signal processing algorithms for high-throughput image analysis and quantification of OCT, hyperspectral, and microscopy images
- Performed aseptic survival surgery on mice for window implantation, wound, and ischemia modeling
- Obtained extensive experience with MATLAB and Labview for image processing and GUI development

**Research Assistant**

*University of Missouri*

June 2006 – June 2011

Advisor: Dr. John A. Viator

- Designed and tested instrumentation for photoacoustic detection of melanoma in histological samples and lymph nodes
- Developed signal processing algorithms to spatially map melanin content in histological samples.
- Demonstrated basic phlebotomy skills including blood draw and fractionation

## Honors and Awards

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AHA Greater Southeast Affiliate Winter 2012 Predoctoral Fellowship	2012 – 2014
NSF GRFP Honorable Mention	2012
Lloyd E. Hightower Scholarship	2010 – 2011
Missouri Honor Award – Outstanding Junior in Biological Engineering	2010
Missouri Bright Flight Scholarship	2007 – 2011

## Peer Reviewed Publications

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1. **McCormack D. R.**, Walsh A. J., Sit W., Arteaga C. L., Chen J., Cook R. S., and Skala M. C. "In vivo hyperpsectral imaging of microvessel response to trastuzumab treatment in breast cancer xenografts," *Biomedical Optics Express* **5**(7), 2247-2261, (2014).
2. **McCormack D. R.**, Bhattacharyya K., Kannan R., Katti K., and Viator J. A. "Enhanced photoacoustic detection of melanoma cells using gold nanoparticles," *Lasers in Surgery and Medicine* **43**(4), 333–338, (2011).
3. **McCormack D. R.**, Al-Shaer M., Goldschmidt B. S., Dale P. S., Henry C., Papageorgio C., Bhattacharyya K., and Viator J. A. "Photoacoustic detection of melanoma micrometastasis in sentinel lymph nodes," *J. Biomech Eng* **131**(7), 074519, (2009).

## Patent Applications

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1. Viator J. A., **McCormack D. R.**, and Dale P. S. Photoacoustic detection of analytes in solid tissue and detection system, U.S. 12/763,700, filed April 20, 2010.

## Conference Presentations

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1. **McCormack D. R.**, Walsh A. J., Sit W., Arteaga C. L., Chen J., Cook R. S., and Skala M. C. "In vivo hyperspectral imaging of microvessel response to trastuzumab treatment in breast cancer xenografts," *Vanderbilt Ingram Cancer Center Retreat*. (Nashville, TN 2014). **Poster.**
2. Poole K. M., Patil C. A., Nelson C. E., **McCormack D. R.**, Madonna M. C., Duvall, C. L., Skala M. C., "Longitudinal study of arteriogenesis with swept source optical coherence tomography and hyperspectral imaging," *SPIE BiOS Optical coherence Tomography and Coherence Domain Optical Methods in Biomedicine XVIII*. (San Francisco, CA 2014).
3. **McCormack D. R.**, Walsh A. J., Sit W, and Skala M. C. "Quantitative measurement of tumor vasculature treatment response using hyperspectral imaging" *Frontiers in Biomedical Imaging*. (Nashville, TN 2013). **Poster.**
4. **McCormack D. R.**, Patil C. A., Tucker-Schwartz J. M., Skala M. C. "Doppler and photothermal optical coherence tomography for quantifying microvessel hemodynamics." *SPIE BiOS Dynamics and Fluctuations in Biomedical photonics VIII*. (San Francisco, CA 2013). **Podium Presentation.**
5. **McCormack D. R.**, Patil C. A., Tucker-Schwartz J. M., Hofmeister L., Skala M. C. "Photothermal Optical Coherence Tomography for Quantifying Blood Oxygen Saturation *in vivo*." *BMES Annual Meeting 2012*. (Atlanta, GA 2012). **Podium Presentation.**
6. **McCormack D. R.**, Bhattacharyya K., Kannan R., Katti K., Viator J. A., "Enhanced detection of circulating melanoma cells using gold nanoparticles as photoacoustic contrast agents" *SPIE BiOS Photons Plus Ultrasound: Imaging and Sensing 2010*. (San Francisco, CA 2010). **Podium Presentation.**
7. **McCormack D. R.**, and Viator J. A. "Photoacoustic detection of metastatic melanoma in sentinel lymph nodes," *Undergraduate Research and Creative Achievements Forum at the University of Missouri*. (Columbia, MO 2008). **Poster.**
8. **McCormack D. R.**, and Viator J. A. "Photoacoustic detection of metastatic melanoma in sentinel lymph nodes," *Undergraduate Research Day at the Capitol*. (Jefferson City, MO 2009). **Poster**