

Ajay Anand, Ph.D.

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TECHNICAL AREAS OF INTEREST/EXPERTISE

- Data Analytics, Machine learning and Deep learning for healthcare
- Biomedical/Ultrasound signal processing, Biomedical instrumentation, Predictive modeling, Time-series analysis

EDUCATION

*Jun 2002—June 2005 PhD in Electrical Engineering (Biomedical Imaging concentration)
(Advisor: Prof. Lawrence Crum, Faculty Committee: Prof. Blake Hannaford)
University of Washington, Seattle, WA
PhD Dissertation: Non-invasive ultrasound thermometry for ablative therapy monitoring*

*Jun 2000—June 2003 Master of Science in Electrical Engineering, (GPA: 3.73/4.0)
University of Washington, Seattle, WA
Major: Biomedical Signal processing, Image Analytics
Advanced graduate level courses: Medical signal processing, Stochastic Analysis of Time Series, Medical imaging*

*Aug 1998—June 2000 Master of Science in Biomedical Engineering, (GPA: 3.9/4.0)
(Advisor: Dr. Khosrow Behbehani)
University of Texas Southwestern Medical Center, Dallas, TX
Major: Biomedical signal processing, Pattern Recognition using Neural Networks*

June 1994—June 1998 Bachelor of Engineering in Electronics Engineering (Grade: Distinction) University of Bombay, India

PROFESSIONAL EXPERIENCE

- **University of Rochester, NY (July 2017 – Present)**
*Deputy Director, Goergen Institute of Data Science
Associate Professor (Instruction)
Secondary/Affiliate Faculty, Department of Biomedical Engineering*

Lead and direct the data science capstone course offered to undergraduate and graduate students (DSC 383W/483). Worked with industry collaborators (including Harris, Xerox, Wegmans, Paychex and multiple other area companies) to define the scope and technical content of capstone projects offered to senior undergraduate and graduate students. Successfully doubled project sponsors year over year to more than 75 projects from 45 organizations (since 2016).

Serving as PI and site director for NSF REU grant. Responsible for management of the entire REU program from call for applications, student selection, schedule and content of

learning modules, and coordinating speakers for research colloquia
Developed new concentration area in data science undergraduate curriculum in the area of
biomedical en

SELECTED RESEARCH PROJECTS AND OUTCOMES

- **US DoD DARPA project on Autonomous Bleed Detection and Localization (DBAC project):**
Led a cross-site team (including University of Washington) to develop novel ultrasound bleed detection and localization algorithms based on 3D-spatial acoustic data for use in battlefield trauma.

data to hospital administrative staff for optimization and efficiency tracking.

PATENTS ISSUED AND PENDING

- 1.

30. US20160346031, "*Heat Sink Parameter Determination Apparatus*"

Processing, 2006. ICASSP 2006 Proceedings. 2006 IEEE International Conference on, 2006. 2: p. II-II.

20. **Anand, A.**, D. Savery, and C. Hall, *Ultrasonic Spatial and Temporal Determination of Heat Deposition in Three Dimensions*. Ultrasonics Symposium, 2006. IEEE, 2006: p. 1758-1761.
21. Kaczkowski, P.J., **A. Anand**, and M.R. Bailey, *Processing ultrasound backscatter to monitor high-intensity focused ultrasound (HIFU) therapy*. The Journal of the Acoustical Society of America, 2005. 118(3): p. 1876-1876.
22. Kaczkowski, P.J. and **A. Anand**, *Bioheat Transfer Model (BHTE) based temperature estimation technique for high intensity focused ultrasound therapy monitoring*. The Journal of the Acoustical Society of America, 2005. 117(4): p. 2444-2444.
23. Kaczkowski, P.J. and **A. Anand**, *Monitoring high-intensity focused ultrasound (HIFU) therapy using radio frequency ultrasound backscatter to quantify heating*. The Journal of the Acoustical Society of America, 2005. 118(3): p. 1882-1882.
24. **Anand, A.** and P. Kaczkowski, *Non-invasive measurement of in situ thermal diffusivity and local heat source using backscattered ultrasound for thermal therapy planning and monitoring*. The Journal of the Acoustical Society of America, 2005. 117(4): p. 2445-2445.
25. Kaczkowski, P.J. and **A. Anand**, *Temperature rise measured noninvasively during thermal therapy using backscattered ultrasound*. Ultrasonics Symposium, 2004 IEEE, 2004. 1: p. 720- 723.
26. **Anand, A.** and P.J. Kaczkowski, *A model-based noninvasive temperature estimation technique for monitoring HIFU therapy using backscattered ultrasound*. The Journal of the Acoustical Society of America, 2004. 115(5): p. 2490-2490.
27. **Anand, A.** and P.J. Kaczkowski, *Monitoring formation of high intensity focused ultrasound (HIFU) induced lesions using backscattered ultrasound*. Acoustics Research Letters Online, 2004. 5(3): p. 88-94.
28. **Anand, A.**, L. Byrd, and P.J. Kaczkowski, *In situ thermal parameter estimation for HIFU therapy planning and treatment monitoring*. Ultrasonics Symposium, 2004 IEEE, 2004. 1: p. 137-140.
29. Reed, J., M. Bailey, **A. Anand**, and P. Kaczkowski, *Separating thermal coagulation and cavitation effects in HIFU attenuation measurements*. The Journal of the Acoustical Society of America, 2003. 114(4): p. 2347-2347.
30. Bailey, M.R., J.A. Reed, **A. Anand**, P.J. Kaczkowski, W. Kreider, S. Vaezy, and M. Nakazawa, *Cavitation detection and suppression in HIFU*. Proceedings of the 3rd International S1504 sear9b(s)3ITT3 1 T52u (c)4 (ous)9 (t)--, a2 (n)-4 (l)-6 (i)0, M.R., J.A. Rr#60 (34 0 Tw 1

