Christopher Turner

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Education

Texas Tech University — Lubbock, TX
Ph.D. Electrical Engineering — *December 2016*
Dissertation: Training a New Instrument to Measure Cotton Fiber Maturity Using Transfer Learning

Texas Tech University — Lubbock, TX
M.S. Electrical Engineering — *May 2003*
Thesis: Automatic Assessment of Smoothness Grading for Fabrics Using a Laser-Ranging Vision System

Texas Tech University — Lubbock, TX
B.S. Computer Science — *August 1999*

Work Experience

Texas Tech University — Lubbock, TX
Research Assistant Professor, — *Jan 2024 – Present*
Plant and Soil Science

- Acted as lead PI or co-PI on grants totaling $4.6M, of which $1.1M is credited to me directly (statistics includes grants time as Post Doc).
- Funding sources include the United States Department of Agriculture, Cotton, Inc., and North Central Soybean Research Program.

Texas Tech University — Lubbock, TX
Postdoctoral Research Associate, — *Oct 2020 – Dec 2023*
Fiber and Biopolymer Research Institute

- Used engineering and data analytics expertise to investigate and improve cotton fiber quality measurements.

Texas Tech University — Lubbock, TX
Research Associate, High Performance Computing Center — *Oct 2016 – Oct 2020*

- Primary duties involved advanced consultation for faculty and students in the use of academic computing clusters, including individual or group training, as well as assistance with code compilation, optimization, and parallelization strategies.

Texas Tech University Health Sciences Center — Lubbock, TX
Director, Business Application Development — *Sept 2000 - Oct 2016*

- Directed a group of developers to design and implement web and database applications to meet various business needs for the TTUHSC as well as the TTU System.

Texas Tech University Lubbock, TX
Research Associate (part-time), Applied Vision Laboratory *Nov 2001 - Aug 2010*
Apr 2012 - May 2016

- Worked on various research projects.

Computer/Programming Skills

- **Languages:** Most proficient with Matlab, Linux shell scripting, C#, and SQL. Also, proficient in C/C++, Python, and R. Extensive experience in web-related technologies: ASP.NET, CSS, HTML, JavaScript, and jQuery.
- **Software:** Operating systems: Windows and Linux. Databases: Microsoft SQL Server, MongoDB, InfluxDB, MySQL/MariaDB. Others: Microsoft Visual Studio, Microsoft Office Suite, Microsoft PowerBI, and numerous compilers/tools/applications frequently used on Linux systems.

Teaching Experience

- CS 4354 – Concepts of Database Systems – Taught for two weeks in the Fall of 2019 to cover the illness of Prof. Xingyu Zhou. Topics included relational databases and normalization techniques.
- ECE 1304 – Introduction to Electrical and Computer Engineering. Various semesters. Covered for Prof. Hamed Sari-Sarraf due to conferences or illness for days or weeks at a time. Originally taught C++ but shifted to Matlab programming in later years.
- ECE 5332 – Topics in Electrical Engineering – Segmentation Techniques in Image Analysis. Fall 2007. Taught three weeks of the course covering image segmentation using Level Set Methods.

Other Academic Activities

- Judge for the annual TTU Plant and Soil Science Graduate Research Symposium 2024.
- Thesis Director for Zachary Hansen. Title: Early Recognition of High Performance Computing Center Overheating Events with Neural Networks. Fall 2019 / Spring 2020. Undergraduate Honor's Thesis.
- Technical Program Committee member for 2018 Supercomputing workshop Data-center Automation, Analytics, and Control (DAAC), November 2018.
- Technical Program Committee member for the 2017 International Conference on Utility and Cloud Computing (UCC) workshop Data-center Automation, Analytics, and Control (DAAC), December 2017.
- Mentor for NSF Research Experience for Undergraduates, Texas Tech University, Summer 2015.

Mentored Students

- Zachary Hansen (B.S. Computer Science, Graduated May 2020)
- Md Rashedul Hassan (M.S. Plant and Soil Science, Graduated Summer 2022)
- Surendra Gautam (M.S. Plant and Soil Science, Graduated May 2023)
- Susmita Saha (M.S. Plant and Soil Science, Thesis Co-Chair, Fall 2023 – ongoing)
- Sai Beeran Pavan (Ph.D. Electrical and Computer Engineering, June 2024 – ongoing)
- Abraham Phillips (B.S. Electrical and Computer Engineering, June 2024 – August 2024)
- Md. Harunur Rashid Bhuiyan (M.S. Plant and Soil Science, Thesis Co-Chair, Fall 2024 – ongoing)
- Brent Colwell (B.S. Electrical and Computer Engineering, September 2024 – January 2025)

Patents

- **Christopher Turner**, Md Abu Sayeed, Eric Hequet. Reconstruction of the cotton fiber length distribution from a fibrogram. Provisional Patent Application No. 63/327,623. April 5, 2022.
- Hamed Sari-Sarraf, Eric Hequet, **Christopher N. Turner**, Aijun Zhu. Fabric wrinkle detection. US 7,601,978. Oct 13, 2009.

Reviewed Articles

L. Morales-Aranibar, M. Saenz, C. G. Morales-Aranibar, et al. "Deciphering the fiber quality of Gossypium barbadense L. var. brasiliensis in La Convención, Cusco, Perú," *J. Cotton Res.* 7, 23, July 2024. (Reviewed April 2024)

J. Gendron, W. Smith, S. Hague, S. "Correlations of upland cotton within boll yield components with fiber properties in breeding populations with improved fiber bundle strength," *Crop Science.* (Reviewed August 2024)

(Authors unknown), "Smoothness level of cotton fabrics: Influence of operating parameters on household washing and drying," *Brazilian J. Chem. Eng.* (Reviewed December 2024)

Peer-reviewed Publications

A. F. Tesema, C. D. Delhom, **C. Turner**, M. A. Sayeed, N. Abidi, "A New Tool for Measuring the Diameter of Hemp Fiber," *J. Nat. Fibers*, 22(1), online December 2024.

A. F. Tesema, S. Gautam, M. A. Sayeed, **C. Turner**, C. D. Delhom, N. Abidi, "Application of the Optical Fiber Diameter Analyzer for assessing cotton fiber ribbon width," *J. Nat. Fibers*, 21(1), online September 2024.

C. Turner, M. A. Sayeed, N. Kothari, J. Olvey, A. F. Tesema, N. Abidi, "Analysis of short fiber measurements calculated from the length distribution from an HVI fibrogram," *J. Nat. Fibers*, 21(1), online August 2024.

Z. Zheng, F. Rahman, S. S. Rumi, **C. Turner**, N. Abidi, "Repurposing cottonseed meal as dye bioabsorbent," *Resources, Conservation & Recycling*, 208, p. 107711, September 2024 (online May 2024).

A. F. Tesema, M. A. Sayeed, **C. Turner**, B. Kelly, E. F. Hequet, "Use of span lengths extracted from the HVI fibrogram to predict yarn quality," *J. Nat. Fibers*, 20(2), August 2023.

M. A. Sayeed, **C. Turner**, B. R. Kelly, J. Wanjura, W. Smith, M. Schumann, E. F. Hequet, "A new method to calculate cotton fiber length uniformity using the HVI fibrogram," *Agronomy*, 13(5), 1326, May 2023.

C. Turner, M. A. Sayeed, E. Hequet, "Reconstruction of the cotton fiber length distribution from an HVI fibrogram," *Textile Research J.*, 93(7-8), p. 1651-1669, April 2023.

A. F. Tesema, M. A. Sayeed, **C. Turner**, B. R. Kelly, and E. F. Hequet, "An approach for obtaining stable, reproducible, and accurate fibrogram measurements form high volume instruments," *Agronomy*, 12(5), May 2022.

G. Ali, L. Wofford, **C. Turner**, and Y. Chen., "Automating CPU dynamic thermal control for high performance computing," *Proc. IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing*, May 16-19, 2022, Taormina, Italy.

M. A. Sayeed, B. R. Kelly, **C. Turner**, and E. F. Hequet, "Investigation of a multivariate correction method for HVI fibrogram measurements," *Agronomy*, 12(2), February 2022.

C. Turner, H. Sari-Sarraf, E. Hequet, "Training a new instrument to measure cotton fiber maturity using transfer learning," *IEEE Trans. on Instrumentation and Measurement*, Vol. 66, No. 7, p. 1668-1678, 2017.

M. Dema, **C. Turner**, H. Sari-Sarraf, E. Hequet, "Machine vision system for characterizing horizontal wicking and drying using and infrared camera," *IEEE Trans. on Industrial Informatics*, 12(2), p. 493-502, January 2016.

C. Turner, H. Sari-Sarraf, E. Hequet, S. Vitha, "Variation in maturity observed along individual cotton fibers using confocal microscopy and image analysis," *Tex. Res. J.*, 85(8), p. 867-883, May 2015.

Abidi N., E. Hequet, **C. Turner**, and H. Sari-Sarraf, "FTIR Analysis of Crosslinked Cotton Using a ZnSe-Universal Attenuated Total Reflectance," *J. Applied Polymer Science*, 96(2), p. 392-399, February 2005.

C. N. Turner, H. Y. Chan, H. Sari-Sarraf, and E. F. Hequet, "Fabric Smoothness Evaluation Using the Wavelet Domain Independent Mixture Model and a Landform Classification Technique," *Proc. SPIE Machine Vision Applications in Industrial Inspection XIII*, Vol. 5679, p. 86-98, San Jose, CA, January 2005.

Abidi N., **C. N. Turner**, E.F. Hequet, and H. Sari-Sarraf, "Objective evaluation of durable press treatment and fabric smoothness rating," *Textile Research J.*, 75(1), p. 19-29, January 2005.

C. N. Turner, H. Sari-Sarraf, E.F. Hequet, N. Abidi and S.H. Lee, "Preliminary validation of a fabric smoothness assessment system," *J. of Electronic Imaging*, p. 418-427, June 2004.

C. N. Turner, H. Sari-Sarraf, E. F. Hequet, and S. H. Lee, "Preliminary Validation of a Fabric Smoothness Assessment System," *Proc. of 6th International Conference on Quality Control by Artificial Vision*, Vol. 5132, p. 140-148, Gatlinburg, TN, May 2003. *(Awarded Best Student Paper)*

C. N. Turner, H. Sari-Sarraf, A. Zhu, E. F. Hequet, and S. H. Lee, "Automatic Assessment of Fabric Smoothness," *Proc. IEEE 45th International Midwest Symposium on Circuits and Systems*, Vol. 2, p. 379-382, Tulsa, OK, August 2002. (Invited)

Other Publications and Presentations

C. Turner, M. A. Sayeed, N. Abidi, "New reference standards for cotton fiber maturity," *Proc. Beltwide Cotton Conference*, New Orleans, LA, January 2025.

M. H. R. Bhuiyan, M. A. Sayeed, **C. Turner**, N. Abidi, "Developing correction methods for new fibrogram-based length measurements," *Proc. Beltwide Cotton Conference*, New Orleans, LA, January 2025.

M. A. Sayeed, **C. Turner**, N. Abidi, "An investigation of cotton fiber strength measurement with High Volume Instrument," *Proc. Beltwide Cotton Conference*, New Orleans, LA, January 2025.

S. Saha, **C. Turner**, S. S. Rumi, M. A. Sayeed, N. Abidi, "Influence of surface chemistry on cotton fiber-to-fiber friction," *Proc. Beltwide Cotton Conference*, New Orleans, LA, January 2025.

J. Espíndola Lima, F. Bolouri, Y. Ichinose, M. Kumar Mehla, **C. Turner**, G. Patil, I. Somayanda, G. Ritchie, K. Jagadish, "Soybean Flowering Dynamics Under Well-Watered and Drought Conditions," ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX, November 2024.

J. M. Espindola Lima, F. Bolouri, Y. Ichinose, Y. Ichinose, M. K. Mehla, W. T. Schapaugh, A. Shekoofa, H. Ye, H. T. Nguyen, G. Patil, G. Ritchie, D. Caragea, H. Sari-Sarraf, **C. Turner**, R. Dhandapani, K. Jagadish, S. Pramanik, ASA, CSSA, SSSA International Annual Meeting, San Antonio, TX, November 2024.

J. M. Espindola Lima, F. Bolouri, S. Pramanik, R. Dhandapani, N. Ahmad, W. Schapaugh, Jr., H. Sari-Sarraf, D. Caragea, **C. Turner**, G. Patil, I. Somayanda, A. Shekoofa, H. T. Nguyen, H. Ye, G. Ritchie, S. V. K. Jagadish, "Machine learning for soybean flower and pod phenotyping through imaging analysis," 2024 AI Symposium, Texas Tech University, October 2, 2024. (poster)

S. Saha, **C. Turner**, A. Sayeed, N. Abidi, "Investigating fiber-to-fiber friction: Proposing a change to the ASTM method," 2024 Plant and Soil Science Graduate Research Symposium, Texas Tech University, Lubbock TX, U.S.A., April 23, 2024.

Z. Zhang, S. Rumi, **C. Turner**, N. Abidi, "Alginate calcium/low-quality cotton fibers composite beads as biosorbent for dye removal: the role of plasma treatment," *ICRA Cotton Innovations*, Vol. 4(1), p. 4-11, March 2024.

S. Saha, **C. Turner**, M. A. Sayeed, S. Liyanage, "An investigation of fiber-to-fiber friction," *ICRA Cotton Innovations*, Vol. 4(1), p. 12-17, March 2024.

A. F. Tesema, M. A. Sayeed, **C. Turner**, C. D. Delhom, N. Abidi, "A new tool for measuring the ribbon width of cotton fibers," *ICRA Cotton Innovations*, Vol. 4(1), p. 18-24, March 2024.

C. Turner, M. A. Sayeed, E. Hequet, "Establishing a small set of reference material for cotton fiber maturity measurements," *ICRA Cotton Innovations*, Vol. 4(1), p. 25-29, March 2024.

M. A. Sayeed, **C. Turner**, E. Hequet, "Recent developments in the cotton fiber length measurement using the High Volume Instrument," *ICRA Cotton Innovations*, Vol. 4(1), p. 30-35, March 2024.

M. A. Sayeed, **C. Turner**, E. F. Hequet, "Role of micronaire on HVI strength measurement," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 3-5, 2024, Fort Worth, TX, U.S.A.

C. Turner, Liyanage S., Saha, S., M. A. Sayeed, E. F. Hequet, "Investigation of a method to measure fiber-to-fiber friction for cotton fibers," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 3-5, 2024, Fort Worth, TX, U.S.A.

A. F. Tesema, A. Sayeed, **C. Turner**, C. Delhom, E. Hequet, "Use of the Optical Fiber Diameter Analyzer for measuring fiber ribbon width," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 3-5, 2024, Fort Worth, TX, U.S.A.

M. A. Sayeed, **C. Turner**, E. Hequet, "Identify potential calibration cotton bales to calibrate new fibrogram-based length parameters, *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 3-5, 2024, Fort Worth, TX, U.S.A.

S. Gautam, A. F. Tesema, M. A. Sayeed, **C. Turner**. E. F. Hequet, "An assessment of OFDA 4000 for cotton fiber length measurement" [Poster Presentation], *Beltwide Cotton Conferences,* National Cotton Council, Jan 3-5, 2024, Fort Worth, TX, U.S.A.

C. Turner, M. A. Sayeed, E. F. Hequet, "Relationship among short fiber measurements from AFIS and new fiber length measurements from HVI," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 10-12, 2023, New Orleans, LA, U.S.A.

M. A. Sayeed, **C. Turner**, E. F. Hequet, "Determining the optimum number of replications for new HVI fiber length measurements," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 10-12, 2023, New Orleans, LA, U.S.A.

E. F. Hequet, **C. Turner**, M. A. Sayeed, "Long-term stability of HVI tensile properties across multiple HVIs," *Proc. Beltwide Cotton Conferences,* National Cotton Council, Jan 10-12, 2023, New Orleans, LA, U.S.A.

A. F. Tesema, M. A. Sayeed, **C. Turner**, B. Kelly, E. Hequet, "Exploring the High Volume Instrument fibrogram," *Texas State Support Committee Review 2022*, December 2022, Lubbock, TX.

E. F. Hequet, **C. Turner**, A. Sayeed, "New developments in cotton fiber quality determination" [Plenary presentation], *World Cotton Research Conference-7*, October 2022, Cairo, Egypt.

M. A. Sayeed, **C. Turner**, and E. Hequet, "Calculating the uniformity of cotton fiber length using the complete HVI fibrogram," *Proc. Beltwide Cotton Conferences*, National Cotton Council, January 4-6, 2022, San Antonio, TX, U.S.A.

M. R. Hasan, **C. Turner**, M. A. Sayeed, and E. Hequet, "Use of fiber length parameters from HVI and AFIS to predict yarn quality," *Proc. Beltwide Cotton Conferences*, National Cotton Council, January 4-6, 2022, San Antonio, TX, U.S.A.

C. Turner, M. A. Sayeed, and E. Hequet, "Reconstruction of fiber length distribution from HVI fibrograms," *Proc. Beltwide Cotton Conferences*, National Cotton Council, January 4-6, 2022, San Antonio, TX, U.S.A.

A. F. Tesema, M. A. Sayeed, **C. Turner**, B. Kelly, and E. Hequet, "Procedure to correct the High Volume Instrument fibrogram," *Proc. Beltwide Cotton Conferences*, National Cotton Council, January 4-6, 2022, San Antonio, TX, U.S.A.

E. Hequet, A. Sayeed, **C. Turner**, "Importance of Cotton Fiber Quality," *International Conference on Materials in Science and Engineering*, Coimbatore, India, keynote address, July 23-25, 2021.

E. Hequet, A. Sayeed, **C. Turner**, "Importance of non-HVI (High Volume Instrument) Cotton Fiber Properties," ICAC/ICRA World Cotton Research Conference (WCRC) Monthly Seminar Series, May 2021.

C. Turner, H. Sari-Sarraf, and E.F. Hequet, "Data mining of cotton fiber quality measurements," *Proc. Beltwide Cotton Conferences*, National Cotton Council, January 8-11, 2008, Nashville, TN, U.S.A.

Hequet E., N. Abidi**, C. Turner**, and H. Sari-Sarraf, "Objective Evaluation of Fabric Smoothness," Proc. Beltwide Cotton Conferences, National Cotton Council, January 5-9, 2004, San Antonio, Texas, U.S.A.