**Nic Herndon**

Associate Professor & Graduate Program Director
Department of Computer Science
East Carolina University
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## Research Interests

Artificial Intelligence, Machine Learning, Natural Language Processing, Big Data Analytics/Data Science, Computational Biology, and Bioinformatics

## Academic Work

Aug 16, 2024 - Present
**Associate Professor**
Department of Computer Science, East Carolina University.

Aug 12, 2019 - Aug 15, 2024
**Assistant Professor**
Department of Computer Science, East Carolina University.

Sep 1, 2018 - Aug 31, 2019
**Teaching Fellow**
College of Information and Computer Sciences, University of Massachusetts Amherst.

## Education

May 13, 2016
**Doctor of Philosophy, Computer Science**, Kansas State University, Manhattan, KS
Thesis: *Domain Adaptation Algorithms for Biological Sequence Classification*
Advisor: Doina Caragea

Aug 15, 2008
**Master of Science, Computer Science**, University of Nevada at Reno, Reno, NV
Thesis: *ATTITUDE: A Tidy Touchscreen Interface to a UML Development Environment*
Advisor: Sergiu Dascalu

May 17, 2004
**Bachelor of Science, Computer Science**, University of Nevada at Reno, Reno, NV
Minor in Mathematics

## Grants

Jun 1, 2024 - Jan 31, 2025
**CMII: ATO Conversations with AI to Stream and Visualize Civil Knowledge (AI CIVILIZE SKILLS)**, PI **Nic Herndon**, Co-PI David Hart, and Co-PI Qin Ding, $500K.

Jul 1, 2023 - Dec 15, 2023
**CMII: Conversations with AI to Stream and Visualize Civil Knowledge (AI CIVILIZE SKILLS)**, PI **Nic Herndon** and Co-PI Qin Ding, $308K.

2021 - 2024
**NSF: REU Site: Software and Data Analytics**, PI Nasseh Tabrizi and Co-PI **Nic Herndon**, $381K.

2017 - 2022
**NSF: IUSE/PFE:RED: PPSE - Transforming Programmers to Professional Software Engineers through Curricular Innovation, Inclusive Pedagogy, and Faculty Development**, PI Venkat Gudivada, Co-PI Marjorie Ringler, Co-PI Mark Hills, Co-PI Qin Ding, and Co-PI **Nic Herndon**, $2M.

2019 - 2022 **USDA: Fact: Enabling Association Mapping And Landscape Genomics Through The Advanced Integration Of Genotype, Phenotype, And Geospatial Data**, PI Jill Wegrzyn, Co-PI **Nic Herndon**, and Co-PI Meg Staton, $500K.

## Publications

### Peer-reviewed Journal Articles

16. Vilkomir, K., Phen, C., Baldwin, F., Cole, J., **Herndon, N.**, and Zhang, W. (2024) *Classification of mandibular molar furcation involvement in periapical radiographs by deep learning*. Imaging Science in Dentistry, Aug;54:e33, 2024.

15. Spoor, S., Wytko, C., Soto, B., Chen, M., Almsaeed, A., Condon, B., **Herndon, N.**, Hough, H., Jung, S., Staton, M., Wegrzyn, J., Main, D., Feltus, F. A., and Ficklin, S. P. (2020). *Tripal and Galaxy: supporting reproducible scientific workflows for community biological databases*. Database, 2020. baaa032.

14. **Herndon, N.**, Shelton, J., Gerischer, L., Ioannidis, P., Ninova, M., Dönitz, J., Waterhouse, R. M., Liang, C., Damm, C., Siemanowski, J., Kitzmann, P., Ulrich, J., Dippel, S., Oberhofer, G., Hu, Y., Schwirz, J., Schacht, M., Lehmann, S., Montino, A., Posnien, N., Gurska, D., Horn, T., Seibert, J., Vargas Jentzsch, I. M., Panfilio, K. A., Li, J., Wimmer, E. A., Stappert, D., Roth, S., Schröder, R., Park, Y., Schoppmeier, M., Chung, H.-R., Klingler, M., Kittelmann, S., Friedrich, M., Chen, R., Altincicek, B., Vilcinskas, A., Zdobnov, E., Griffiths-Jones, S., Ronshaugen, M., Stanke, M., Brown, S. J., and Bucher, G. (2020). *Enhanced genome assembly and a new official gene set for tribolium castaneum*. BMC Genomics, 21(1):47.

13. Wegrzyn, J. L., Falk, T., Grau, E., Buehler, S., Ramnath, R., and **Herndon, N.** (2019). *Cyberinfrastructure and resources to enable an integrative approach to studying forest trees*. Evolutionary Applications, 00:1-14, 2019.

12. Wegrzyn, J. L., Staton, M. A., Street, N. R., Main, D., Grau, E., **Herndon, N.**, Buehler, S., Falk, T., Zaman, S., Ramnath, R., Richter, P., Sun, L., Condon, B., Almsaeed, A., Chen, M., Mannapperuma, C., Jung, S., and Ficklin, S. (2019). *Cyberinfrastructure to improve forest health and productivity: The role of tree databases in connecting genomes, phenomes, and the environment*. Frontiers in Plant Science, 10:813, 2019.

11. Harper, L., Campbell, J., Cannon, E. K. S., Jung, S., Poelchau, M., Walls, R., Andorf, C., Arnaud, E., Berardini, T. Z., Birkett, C., Cannon, S., Carson, J., Condon, B., Cooper, L., Dunn, N., Elsik, C. G., Farmer, A., Ficklin, S. P., Grant, D., Grau, E., **Herndon, N.**, Hu, Z.-L., Humann, J., Jaiswal, P., Jonquet, C., Laporte, M.-A., Larmande, P., Lazo, G., McCarthy, F., Menda, N., Mungall, C. J., Munoz-Torres, M. C., Naithani, S., Nelson, R., Nesdill, D., Park, C., Reecy, J., Reiser, L., Sanderson, L.-A., Sen, T. Z., Staton, M., Subramaniam, S., Tello-Ruiz, M. K., Unda, V., Unni, D., Wang, L., Ware, D., Wegrzyn, J., Williams, J., Woodhouse, M., Yu, J., and Main, D. (2018). *AgBioData Consortium Recommendations for Sustainable Genomics and Genetics Databases for Agriculture*, Database, 2018:bay088.

10. Falk, T., **Herndon, N.**, Grau, E., Buehler, S., Richter, P., Zaman, S., Baker, E. M., Ramnath, R., Ficklin, S., Staton, M., Feltus, F. A., Jung, S., Main, D., and Wegrzyn, J. L. (2018). *Growing and cultivating the forest genomics database, TreeGenes*. Database (2018) Vol. 2018.

9. Kim, D., Jaworski, D. C., Cheng, C., Nair, A. D. S., Ganta, R. R., **Herndon, N.**, Brown, S. J., and Park, Y. (2018). *The transcriptome of the lone star tick,* Amblyomma americanum,

*reveals molecular changes in response to infection with the pathogen,* Ehrlichia chaffeensis. Journal of Asia-Pacific Entomology, 21(3):852–863, 2018.

8. Li, H., Caragea, D., Caragea, C., and **Herndon, N.** (2017). *Disaster response aided by tweet classification with a domain adaptation approach*. Journal of Contingencies and Crisis Management, 2017;00:1-12.

7. Kanost, M. R., Arrese, E. L., Cao, X., Chen, Y.-R., Chellapilla, S., Goldsmith, M. R., Grosse-Wilde, E., Heckel, D. G., **Herndon, N.**, Jiang, H., Papanicolaou, A., Qu, J., Soulages, J. L., Vogel, H., Walters, J., Waterhouse, R. M., Ahn, S.-J., Almeida, F. C., An, C., Aqrawi, P., Bretschneider, A., Bryant, W. B., Bucks, S., Chao, H., Chevignon, G., Christen, J. M., Clarke, D. F., Dittmer, N. T., Ferguson, L. C., Garavelou, S., Gordon, K. H., Gunaratna, R. T., Han, Y., Hauser, F., He, Y., Heidel-Fischer, H., Hirsh, A., Hu, Y., Jiang, H., Kalra, D., Klinner, C., König, C., Kovar, C., Kroll, A. R., Kuwar, S. S., Lee, S. L., Lehman, R., Li, K., Li, Z., Liang, H., Lovelace, S., Lu, Z., Mansfield, J. H., McCulloch, K. J., Mathew, T., Morton, B., Muzny, D. M., Neunemann, D., Ongeri, F., Pauchet, Y., Pu, L.-L., Pyrousis, I., Rao, X.-J., Redding, A., Roesel, C., Sanchez- Gracia, A., Schaack, S., Shukla, A., Tetreau, G., Wang, Y., Xiong, G.-H., Traut, W., Walsh, T. K., Worley, K. C., Wu, D., Wu, W., Wu, Y.-Q., Zhang, X., Zou, Z., Zucker, H., Briscoe, A. D., Burmester, T., Clem, R. J., Feyereisen, R., Grimmelikhuijzen, C. J., Hamodrakas, S. J., Hansson, B. S., Huguet, E., Jermiin, L. S., Lan, Q., Lehman, H. K., Lorenzen, M., Merzendorfer, H., Michalopoulos, I., Morton, D. B., Muthukrishnan, S., Oakeshott, J. G., Palmer, W., Park, Y., Passarelli, A. L., Rozas, J., Schwartz, L. M., Smith, W., Southgate, A., Vilcinskas, A., Vogt, R., Wang, P., Werren, J., Yu, X.-Q., Zhou, J.-J., Brown, S. J., Scherer, S. E., Richards, S., and Blissard, G. W. (2016). *Multifaceted biological insights from a draft genome sequence of the tobacco hornworm moth, Manduca sexta*. Insect Biochemistry and Molecular Biology 76 (2016): 118-147.

6. Raithel, S., Johnson, L., Galliart, M., Brown, S. J., Shelton, J. M., **Herndon, N.**, and Bello, N. M. (2016). *Inferential considerations for low-count RNA-seq transcripts: a case study on an* edaphic *subspecies of dominant prairie grass* Andropogon gerardii. BMC Genomics, 17(140):1-16.

5. **Herndon, N.**, and Caragea, D. (2016). *A Study of Domain Adaptation Classifiers Derived from Logistic Regression for the Task of Splice Site Prediction*. IEEE Transactions on NanoBioscience, PP(99):1-9.

4. **Herndon, N.**, and Caragea, D. (2016). *An evaluation of approaches for using unlabeled data with domain adaptation*. Network Modeling Analysis in Health Informatics and Bioinformatics, 5(25):1-12.

3. Tangirala, K., **Herndon, N.**, and Caragea, D. (2016). *A Comparative Analysis between* k-mers *and Community Detection-based Features for the Task of Protein Classification*. IEEE Transactions on NanoBioscience, PP(99):1-9.

2. Shelton, J. M., Coleman, M. C., **Herndon, N.**, Lu, N., Lam, E. T., Anantharaman, T., Sheth, P., and Brown, S. J. (2015). *Tools and pipelines for BioNano data: molecule assembly pipeline and FASTA super scaffolding tool*. BMC Genomics, 16(1):734.

1. Zhao, C., Escalante, L., Chen, H., Benatti, T., Qu, J., Chellapilla, S., Waterhouse, R., Wheeler, D., Andersson, M., Bao, R., Batterton, M., Behura, S., Blankenburg, K., Caragea, D., Carolan, J., Coyle, M., El-Bouhssini, M., Francisco, L., Friedrich, M., Gill, N., Grace, T., Grimmelikhuijzen, C., Han, Y., Hauser, F., **Herndon, N.**, Holder, M., Ioannidis, P., Jackson, L., Javaid, M., Jhangiani, S., Johnson, A., Kalra, D., Korchina,

V., Kovar, C., Lara, F., Lee, S., Liu, X., Löfstedt, C., Mata, R., Mathew, T., Muzny, D., Nagar, S., Nazareth, L., Okwuonu, G., Ongeri, F., Perales, L., Peterson, B., Pu, L.-L., Robertson, H., Schemerhorn, B., Scherer, S., Shreve, J., Simmons, D., Subramanyam, S., Thornton, R., Xue, K., Weissenberger, G., Williams, C., Worley, K., Zhu, D., Zhu, Y., Harris, M., Shukle, R., Werren, J., Zdobnov, E., Chen, M.-S., Brown, S., Stuart, J., and Richards, S. (2015). *A Massive Expansion of Effector Genes Underlies Gall-Formation in the Wheat Pest* Mayetiola destructor. Current Biology, 25(5):613 - 620.

## Book Chapters

4. Mehta, A., Bi, R., Moamen, S., Abdelaal, M., and **Herndon, N.** (2023). *Automatic Detection of Facial Landmarks for Denture Models*. Cuzzocrea, A., Gusikhin, O., Hammoudi, S., Quix, C. (Eds.) Data Management Technologies and Applications. Communications in Computer and Information Science, Springer Nature Switzerland, 2023, vol. 1860, pp. 114–133.

3. **Herndon, N.**, Falk, T., Grau, E. S., Jung, S., Ficklin, S., Main, D., Staton, M. E., and Wegrzyn, J. L. (2018). *Association mapping for forest trees with CartograTree*. Thessen, AE (Ed.) Application of Semantic Technologies in Biodiversity Science. Studies on the Semantic Web, IOS Press/AKA Verlag, 2018, vol. 33, pp. 137-149.

2. **Herndon, N.**, and Caragea, D. (2015). *Empirical Study of Domain Adaptation Algorithms on the Task of Splice Site Prediction*. In Biomedical Engineering Systems and Technologies, ser. Communications in Computer and Information Science, Springer International Publishing, 2015, vol. 511, pp. 195-211.

1. **Herndon, N.**, and Caragea, D. (2014). *Predicting Protein Localization Using a Domain Adaptation Approach*. In Biomedical Engineering Systems and Technologies, ser. Communications in Computer and Information Science, Springer Berlin Heidelberg, 2014, vol. 452, pp. 191-206.

## Interviews, Speeches, Lectures

15. **Herndon, N.** (2025). *ECU artificial intelligence expert explains Google's changes to AI policy*. WITN, hosted by Merit Morgan, March 4th 2025. TV interview.

14. **Herndon, N.** and Hart, D. (2024). *How AI Learns and Why that Matters to You*, Greenville, NC. November 6th, 2024. Workshop presentation.

13. **Herndon, N.** (2024). *Expert discusses AI misinformation hitting Western Carolina following Helene*. WITN, hosted by Amarachi Uche, October 4th 2024. TV interview.

12. **Herndon, N.** (2024). *ECU holds job fair amid growing AI presence in the job market*. WITN, hosted by Hojung Ryu, September 25th 2024. TV interview.

11. Hart, D., and **Herndon, N.** (2024). *How AI Learns and Why That Matters*. Greenville Noon Rotary Club, Greenville, NC. August 19, 2024. Short presentation.

10. **Herndon, N.** (2024). *ECU Computer Science expert breaks down Artificial Intelligence advancements*. WITN, hosted by Merit Morgan, July 30th 2024. TV interview.

9. **Herndon, N.**, and Hart, D. (2024). *Is AI a friend or a foe?*. AI Roundtable: Artificial Intelligence and Machine Learning in Defense & Industry at DANC Science & Technology Forum. April 23, 2024. Short presentation and panel discussion.

8. **Herndon, N.** (2023). *You and AI*. East Carolina University's podcast, Talk Like a Pirate, hosted by Rich Klindworth. November 8, 2023. Podcast interview.

7. **Herndon, N.**, Lassiter, S., and Madigan, B. (2023). *Classroom Conversations: The discussions of AI in classrooms*. WNCT 9 On Your Side, hosted by Erin Jenkins and Sarah

Gray Barr, August 29th 2023. TV interview.

6. **Herndon, N.** (2023). NewsChannel 12 Investigates, hosted by Tyler Hardin, NewsChannel 12. TV interview.
   - ○ *Artificial intelligence on the rise?*, May 4, 2023.
   - ○ *Artificial intelligence: Part 2*, May 11, 2023.

5. Haberstroh, A., Kariko, D., Kavner, A., Lamb, R., Thomas, J., and **Herndon, N.** (2023). *Transforming Research Practice Through Artificial Intelligence*, April 26th 2023, East Carolina University, Greenville, NC. Panel discussion.

4. Banks, W., Faranesh, L., Click-Kimber, C.J., **Herndon, N.**, Haberstroh, A., Thomas, J., and Tillman, J. (2023). *Teaching and Learning in the Age of Generative Artificial Intelligence (ChatGPT): Opportunities and Challenges*, April 3rd 2023, East Carolina University, Greenville, NC. Panel discussion.

3. **Herndon, N.** (2023). *Ethical considerations for data collection and use*. Love Data Week, Greenville, NC. February 14, 2023. Lecture.

2. **Herndon, N.** (2022). *Is AI smarter than a 5th grader?* Nerd Nite Greenville, NC. October 14, 2022. 20 minute fun-yet-informative presentation.

1. **Herndon, N.** (2021). *Data science to mitigate global warming effects*. The 30th International Conference on Software Engineering and Data Engineering (SEDE 2021), Virtual Conference Online. October 11, 2021. Keynote speech.

## Peer-reviewed Conference Papers

20. Vilkomir, K. and **Herndon, N.** (2024). *Challenges of Automatic Document Processing with Historical Data*. In Proceedings of the 62nd ACMSE Conference (ACMSE 2024), Marietta, GA, pp. 50-59. [Regular paper]

19. Rose, M., Geradts, J., and **Herndon, N.** (2024). *Deep learning in digital breast pathology*. In Proceedings of the 17thInternational Joint Conference on Biomedical Engineering Systems and Technologies (BIOINFORMATICS 2024), Rome, Italy, pp. 404–414. [Regular paper. Acceptance rate: 11%]

18. Mehta A., Abdelaal M., Sheba M., and **Herndon, N.** (2023). *Finding Similar Non-Collapsed Faces to Collapsed Faces Using Deep Learning Face Recognition*. In Proceedings of the 18th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP 2023), Lisbon, Portugal, pp. 897-904. [Short paper]

17. Mehta A., Abdelaal M., Sheba M., and **Herndon, N.** (2022). *Automated Neoclassical Vertical Canon Validation in Human Faces with Machine Learning*. In Proceedings of the 11th International Conference on Data Science, Technology and Applications (DATA 2022), Lisbon, Portugal, pp. 461-467. [Short paper]

16. Olufowobi, K., and **Herndon, N.** (2022). *Towards a Low-cost Vision System for Real-time Pavement Condition Assessment*. In Proceedings of the 11th International Conference on Pattern Recognition Applications and Methods (ICPRAM 2022), Online Streaming, pp. 526-533. [Short paper]

15. Gudivada, V.N., **Herndon, N.**, and Rao, D. (2021). *ISPeL: A topic dependency-driven system for personalized learning*. In Proceedings of the 15th International Conference on Semantic Computing (ICSC 2021), Laguna Hills, CA, pp. 463-467.

14. Sokolov, M., and **Herndon, N.** (2021). *Predicting Malware Attacks using Machine Learning and AutoAI*. In Proceedings of the 10th International Conference on Pattern Recognition Applications and Methods (ICPRAM 2021), Vienna, Austria, pp. 295-301. [Short paper]

13. Sokolov, M., Olufowobi, K., and **Herndon, N.** (2020). *Visual Spoofing in Content-Based Spam Detection*. In Proceedings of the 13$^{th}$ International Conference on Security of Information and Networks (SINCONF 2020), Istanbul, Turkey, pp. 1-5. [Short paper, ***Best presentation award***]

12. Rao, D.L., Pala, V.R., **Herndon, N.**, and Gudivada, V.N. (2020). *A Deep Learning Architecture for Corpus Creation for Telugu Language*. In: Iyer B., Rajurkar A., Gudivada V. (eds) Applied Computer Vision and Image Processing. Advances in Intelligent Systems and Computing, vol 1155. Springer, Singapore.

11. **Herndon, N.**, Grau, E. S., Batra, I., Demurjian Jr., S. A., Vasquez-Gross, H. A., Staton, M. E., and Wegrzyn, J. L. (2016). *CartograTree: Enabling Landscape Genomics for Forest Trees*. In Proceedings of the Open Source Geospatial Research & Education Symposium (OGRS 2016), Perugia, Italy, pp. 1-7. [Short paper]

10. **Herndon, N.**, and Caragea, D. (2016). Ab initio *Splice Site Prediction with Simple Domain Adaptation Classifiers*. In Proceedings of the 7$^{th}$ International Conference on Bioinformatics Models, Methods and Algorithms (BIOINFORMATICS 2016), Rome, Italy, pp. 245-252. [Short paper]

9. Roy, S., DeLoach, J., Li, Y., **Herndon, N.**, Caragea, D., Ou, X., Ranganath, V. P., Li, H., and Guevara, N. (2015). *Experimental Study with Real-world Data for Android App Security Analysis using Machine Learning*. In Proceedings of the 2015 Annual Computer Security Applications Conference (ACSAC 2015), Los Angeles, CA, pp. 81-90. [Regular paper. Acceptance rate: 25%]

8. Tangirala, K., **Herndon, N.**, and Caragea, D. (2015). *Community Detection-Based Feature Construction for Protein Sequence Classification*. In Proceedings of the 11$^{th}$ International Symposium on Bioinformatics Research and Applications (ISBRA 2015), Norfolk, VA, pp. 331-342. [Regular paper. Acceptance rate: 35%]

7. Li, H., Guevara, N., **Herndon, N.**, and Caragea, D., Neppalli, K., Caragea, C., Squicciarini, A. C., Tapia, A. H. (2015). *Twitter Mining for Disaster Response: A Domain Adaptation Approach*. In Proceedings of the 12$^{th}$ International Conference on Information Systems for Crisis Response and Management (ISCRAM 2015), Kristiansand, Norway. [Short paper. Acceptance rate: 70%]

6. **Herndon, N.**, and Caragea, D. (2015). *An Evaluation of Self-training Styles for Domain Adaptation on the Task of Splice Site Prediction*. In Proceedings of the 4$^{th}$ International Symposium on Network Enabled Health Informatics, Biomedicine and Bioinformatics (HI-BI-BI 2015), Paris, France, pp. 1042-1047. [Regular paper. Acceptance rate: 35%. ***Best paper award***]

5. **Herndon, N.**, and Caragea, D. (2015). *Domain Adaptation with Logistic Regression for the Task of Splice Site Prediction*. In Proceedings of the 11$^{th}$ International Symposium on Bioinformatics Research and Applications (ISBRA 2015), Norfolk, VA, pp. 125-137. [Regular paper. Acceptance rate: 35%]

4. **Herndon, N.**, Tangirala, K., and Caragea, D. (2014). *Predicting Protein Localization Using a Domain Adaptation Naïve Bayes Classifier with Burrows Wheeler Transform Features*. In Proceedings of the 6$^{th}$ IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2014), Belfast, UK, pp. 501-504. [Short paper. Acceptance rate: 38%]

3. **Herndon, N.**, and Caragea, D. (2014). *Empirical Study of Domain Adaptation with Naïve Bayes on the Task of Splice Site Prediction*. In Proceedings of the 5$^{th}$ International Conference on Bioinformatics Models, Methods and Algorithms (BIOINFORMATICS 2014), Angers,

France, pp. 57-67. [Regular paper. Acceptance rate: 14%. ***Nominated for best paper award***]

2. **Herndon, N.**, and Caragea, D. (2013). *Naïve Bayes Domain Adaptation for Biological Sequences*. In Proceedings of the 4th International Conference on Bioinformatics Models, Methods and Algorithms (BIOINFORMATICS 2013), Barcelona, Spain, pp. 62-70. [Regular paper. Acceptance rate: 10%. ***Nominated for best student paper award***]

1. Vert, G., and **Herndon, N.** (2006). *Secure Simultaneous Search of Distributed, Heterogeneous Bioinformatics Databases*. In Proceedings of the 2006 International Conference on Security & Management (SAM 2006), Las Vegas, NV, USA, pp. 384-389.

## Professional Activities

### Department and University Service

**Nov 8, 2024 - Mar 5, 2025**
**Chair**, *Search Committee for Two Tenure Track Faculty*
- Reviewed and ranked applications.
- Conducted online interviews.
- Made hiring recommendations to personnel committee and department chair.

**Aug 28, 2024 - Present**
**College Representative**, *University Graduate Council*
- Evaluate changes to all graduate academic policies, including graduate curriculum and degree programs.

**Aug 16, 2024 - Present**
**Member**, *Personnel/Tenure/Promotion Committee*
- Review applications for tenure, promotion, and emeritus status and make recommendations to the chair of the department.

**Dec 8, 2023 - Apr 10, 2024**
**Chair**, *Search Committee for Tenure Track Faculty*
- Reviewed and ranked applications.
- Conducted online interviews.
- Made hiring recommendations to personnel committee and department chair.

**Aug 16, 2023 - Dec 4, 2023**
**Member**, *CET Strategic Planning Committee*
- Coordinate the development of the CET strategic plan for 2023-2028.

**Aug 12, 2023 - Present**
**Chair**, *Graduate Curriculum Committee*
- Oversee and coordinate educational programs to assure that each degree program and/or concentration contains essential curricular components, has appropriate content and pedagogy, and maintains discipline currency.

**May 10, 2023 - Present**
**Member**, *Interdisciplinary Applied Data Analytics*
- Review the curriculum for the graduate certificate.

**Apr 20, 2023 - Dec 8, 2023**
**Member**, *Search Committee for Chair of the Computer Science Department*
- Reviewed and ranked applications.
- Conducted online interviews.
- Made hiring recommendations to chair of the search committee.

**Sep 14, 2022 - Present**
**Member**, *CET Graduate Faculty Committee*
- Make recommendations to the Dean regarding all graduate matters.

Jul 1, 2022 - **Graduate Program Director**, *Department of Computer Science*
Present
- Review and update the department's graduate programs and curricula.
- Conduct recruitment sessions for the department's graduate programs.
- Review graduate applications.
- Create budget, assessment reports, and course schedules.
- Assign graduate assistants to teaching assistant roles.

Jul 1, 2022 - **Member**, *Graduate Curriculum Committee*
Aug 11, 2023
- Oversaw and coordinated educational programs to assure that each degree program and/or concentration contains essential curricular components, has appropriate content and pedagogy, and maintains discipline currency.

Aug 10, 2022 - **Member**, *Assessment Committee for Bachelor of Science in Software Engineering*
Present
- Prepare assessment reports for IPAR.

Oct 29, 2020 - **Member**, *CET Recognition Ceremony Committee*
Aug 16, 2023
- Organize recognition ceremony events.

Aug 10, 2020 - **Member**, *Department Assessment Committee*
Present
- Prepare assessment reports for IPAR.

Aug 10, 2020 - **Member**, *CET Assessment Committee*
Present
- Ensure assessment reports are submitted as required.

Aug 10, 2022 - **Chair**, *Search Committee for Two Tenure Track Faculty*
Dec 1, 2022
- Reviewed and ranked applications.
- Scheduled and conducted online interviews.
- Scheduled and conducted on campus interviews.
- Made hiring recommendations to personnel committee and department chair.

Mar 1, 2022 - **Member**, *Search Committee for Pharma Pathway Advisor*
Apr 30, 2022
- Reviewed and ranked applications.
- Conducted online interviews.
- Made hiring recommendations to chair of the search committee.

### *Campus organizations*

Aug 23, 2021 - **Faculty sponsor**, *ACM Student Chapter.*
Aug 21, 2022
- Coordinated with the officers to organize meetings and workshops throughout the year, and to create a website for the chapter, `https://ecu.acm.org`.

Aug 23, 2021 - **Coordinator**, *Computer Science Student Ambassador Program.*
Aug 21, 2022
- Mentored seven undergraduate student ambassadors.
- Coordinated eight high school and two middle school visits, each attended by 10 to 15 students.

## Academic Supervision

### *Master students advised*
#### *Thesis*

9. Amanda Lucas. *Creating a Predictive Pricing Model for National Football League Trading Cards.* MS in Data Science. (May 2025).
8. Ayobami Alimi. *Predicting and Mapping the Geographic Distribution of Glaucoma in the United States: The Role of Social Determinants Using the All of Us Dataset.* MS in Data

Science. (May 2025).

7. Madison Rose. *Patch Based Analysis with Machine Learning to Aid Breast Cancer Recurrence Prediction.* MS in Data Science (May 2024).

6. Gabrielle Stein. *The Perils of Generative Model Inbreeding: Evaluating the Consequences of Cross-model Training in Large Language Models.* MS in Computer Science (May 2024).

5. Andrew Edwards. *Microservice Architecture for Stateful Applications.* MS in Computer Science (May 2024).

4. Katerina Vilkomir. *Deep Learning-based Mandibular Molars Detection and Classification of Furcation Involvement.* MS in Data Science (May 2024).

3. Ashwinee Mehta. *Automated Dental Aesthetics with Machine Learning.* MS in Computer Science (December 2022).

2. Kehinde Olufowobi. *Towards a Low-cost Vision System for Real-time Pavement Condition Assessment.* MS in Computer Science (July 2021).

1. Mark Sokolov. *Applied Machine Learning for Cybersecurity in Spam Filtering and Malware Detection.* MS in Software Engineering (December 2020).

### *Project*

2. Jonathan R. Martin. *Containerization of an Autograder.* MS in Software Engineering project (December 2023).

1. Marcey Lewin. *Frequency Visualization with D3.* MS in Software Engineering project (May 2020).

### *Master students currently advised*

1. Jeya Shivanti Bharath. MS in Data Science. Expected graduation: May 2026.

### *Examination committees – Master students*
### *Thesis*

24. Ayberk Cansever. *Improving Segmented Style Transfer via Blended Partial Convolution.* MS in Data Science (May 2025). Advisor: David Hart.

23. Saumya Singh Jaiswal. *A Framework for Temporal-based Prediction of Eye Diseases.* MS in Computer Science (May 2025). Advisor: David Hart.

22. Jose Guzman-Sanchez. *Risk-based Test Case Prioritization Using Large Language Models in Regression Testing.* MS in Software Engineering (May 2025). Advisor: Madhusudan Srinivasan.

21. Anita Bhandari. *Evaluating Object Detection Algorithms for Crowded Sperm Microscopy Videos.* MS in Data Science (May 2025). Advisor: David Hart.

20. Raphael Dusablon. *Sampling and Selection Methods for Applying 2D Neural Networks to 3D Gaussian Splats.* MS in Computer Science (May 2025). Advisor: David Hart.

19. Denise Bruce. *Improving Multi-variate Time Series Forecasting with Dynamic Multi-head Attention Adjacency Matrix.* MS in Data Science (May 2025). Advisor: Rui Wu.

18. Seyed Hadi Seyed. *Analyzing Style Transfer Algorithms for Segmented Images.* MS in Data Science (Dec 2024). Advisor: David Hart.

17. Suavis Giramata. *Metamorphic Testing Prioritization for Fairness Evaluation in Large Language Models.* MS in Data Science (Dec 2024). Advisor: Dr. Madhusudan Srinivasan.

16. Cris Zbavitel. *Towards Automated Garment Measurements in the Wild Using Landmark and Depth Estimation.* MS in Computer Science (Dec 2024). Advisor: Dr. David Hart.

15. Elaine Cahill. *An Empirical Exploration of Artificial Intelligence for Software Defect Prediction in Software Engineering.* MS in Software Engineering (July 2024). Advisor: Dr. Madhusudan Srinivasan.

14. Cody Johnson. *Student-centered Learning Through Augmented Reality in Anatomy and Physiology Education.* MS in Computer Science (May 2024). Advisor: Dr. Rui Wu.

13. Abelson Abueg. *A Comparative Study on MFCC, GFCC, BFCC, and CQCC Spectral Speech Feature Performance in X-vector Clustering.* MS in Software Engineering (July 2023). Advisor: Dr. Nasseh Tabrizi.

12. Sharon Sone Mamua. *Time Series Forecasting Using Generative Adversarial Network.* MS in Computer Science (May 2023). Advisor: Dr. Rui Wu.

11. Connor D. Bullard. *QPE: A System for Deconstructing SQL Queries.* MS in Computer Science (May 2023). Advisor: Dr. Venkat Gudivada.

10. Dhana Srimanthini Tipirneni. *An Empirical Study of Concurrent Feature Usage in GO.* MS in Computer Science (December 2022). Advisor: Dr. Nasseh Tabrizi.

9. Ganesh Babu. *QA4R: A Question Answering System for R Packages.* MS in Computer Science (July 2022). Advisor: Dr. Venkat Gudivada.

8. Mehrdad Rezei. *Reinforcement Learning based Recommender System using Q-Learning and Deep Q-Learning.* MS in Computer Science (July 2022). Advisor: Dr. Nasseh Tabrizi.

7. Linwood Earl Hall Jr. *Human Organ Real-time Localization Using HTC Vive Tracking System and Machine Learning Models.* MS in Computer Science (May 2022). Advisor: Dr. Rui Wu.

6. Jennifer N. Andriot. *An HMM-based OCR Framework for Telugu Using a Transfer Learning Approach.* MS in Data Science (July 2021). Advisor: Dr. Venkat Gudivada.

5. Zeinab K. N. Jooneghani. *Comparison of Topic Modeling Methods for Analyzing Tweets on COVID-19 Vaccine.* MS in Data Science (July 2021). Advisor: Dr. Nasseh Tabrizi.

4. William F. Clark. *Development Operations for Big Data Analytics in Real-Time NoSQL Systems.* MS in Computer Science (December 2020). Advisor: Dr. Venkat Gudivada.

3. Salar Houshvand. *Framework for Automatically Generate Questions for Different Topics in Discrete Mathematics.* MS in Software Engineering (December 2020). Advisor: Dr. Venkat Gudivada.

2. Swetha Busireddy. *Framework for Question Answering System Using Dynamic Co-attention Networks.* MS in Computer Science (May 2020). Advisor: Dr. Venkat Gudivada.

1. Rakesh Matta. *Environmental Model Accuracy Improvement Framework Using Statistical Techniques and a Novel Training Approach.* MS in Computer Science (May 2020). Advisor: Dr. Rui Wu.

### *Project*

1. Jennifer Smith. *A Comparison of Classification Tree and Association Rule Mining Models in Biomedical Studies.* MS in Computer Science (May 2020). Advisor: Dr. Qin Ding.

### *Honors College students advised*

2. Majoie Desire Mendouga Ngandi. *Impact of Machine Learning/AI Models in Cancer Treatment.* Signature Honors Project (May 2025).

1. Madison Rose. *Machine Learning Techniques to Aid Breast Cancer Recurrence Prediction.* Signature Honors Project (May 2023).

### Undergraduate students advised

21. Darby Waters. Area: *LLMs and robotics.* (Summer 2024 to Spring 2025).
20. Ahmad Abulabda. Area: *Pathology image analysis.* (Summer 2024 to Fall 2024).
19. Jordan Welborn. Areas: *Large language models* (Summer and Fall 2023), and *Dental image analysis* (Spring 2023).
18. Grant Melvin. Area: *Web interface for large language models.* (Summer and Fall 2023).
17. Alec Lozano. Area: *Information retrieval.* (Summer and Fall 2023).
16. Ryan Balungeli. Area: *Text summarization.* (Summer and Fall 2023).
15. Eli Richmond – from Arkansas State University. Area: *Training transformers to generate code to solve arithmetic problems.* Research experience for undergraduates (REU) program (Summer 2023).
14. Jaxon Bauer. Area: *A Review of Reinforcement Learning Methods for Models across Physical and Virtual Domains.* Research experience for undergraduates (REU) program (Summer 2023).
13. Gregory Maddox – from University of Houston. Area: *Search Engine with Question and Answer Capabilities for Document Retrieval.* Research experience for undergraduates (REU) program (Summer 2023).
12. Jarred Desrosiers. Areas: *Pathology image analysis* (Spring and Fall 2022), and *Robotics with NAO⁶* (Fall 2021).
11. Joseph Aaron Wireman Jr. Area: *Data visualization for CartograPlant.* (Spring and Fall 2022).
10. Richard Bi – rising sophomore at the University of Illinois Urbana-Champaign. Area: *3D facial landmarks.* Research experience for undergraduates (REU) program (Summer 2022).
9. April Murakami – from Pacific University. Area: *Pathology image analysis.* Research experience for undergraduates (REU) program (Summer 2022).
8. Lucille Legacy. Area: *Pathology image analysis.* (Spring 2022).
7. Alex Lowe. Area: *GIS data integration for CartograPlant.* (Summer 2021 to Spring 2022).
6. Jahmad Attucks. Area: *Data visualization for CartograPlant.* (Spring 2022).
5. Katie Warren. Area: *Robotics with NAO⁶.* (Fall 2021 and Spring 2022).
4. Seymone Gugneja. Area: *Robotics with NAO⁶.* (Fall 2021 and Spring 2022).
3. Bryan Holguin Herrera. Areas: *Data visualization for CartograPlant* (Summer and Fall 2021), *Data science for climate change – Odyssey Extreme Education* (Spring and Summer 2021), and *Robotics with NAO⁶* (Spring 2020).
2. Leo Espinoza. Area: *Robotics with NAO⁶.* (Spring 2020).
1. Hunter Bardasian Wright. Area: *Deep learning for computer vision with AWS DeepLens.* (Spring 2020).

### Undergraduate students currently advised

8. Sofia Azam. Area: *Pathology image analysis.*
7. Marian Sousan. Area: *Pathology image analysis.*
6. Alec Lozano. Area: *Robotics.*
5. Fares Abu Samhan. Area: *3D modeling.*
4. Stephanie Sarambo. Area: *Natural language processing.*
3. Weston Nelson. Area: *Natural language processing.*
2. Aiden Altman. Area: *Robotics.*
1. Ranol Lezutekong. Area: *LLMs.*

### High school students advised

1. Jacob Grinberg [co-advised with Robert R. Gotwals, Jr.]. Areas: *Reinforcement Learning, Imitation Learning.* Research in Computational Science (RCompSci) program at the North Carolina School of Science and Mathematics, Durham, NC (Summer 2020).

## Teaching Experience

### East Carolina University, Greenville, NC

CSCI 3675 **Instructor**, *Principles of Programming Languages*
Offered: Fall 2019-2023
- Redesigned the course – textbooks used, lectures, and assignments.
- Prepared & presented lectures, prepared assignments, supervised & mentored TAs.
- Average enrollment of 78 students from Computer Science.

CSCI 4140 **Instructor**, *Natural Language Processing | Computational Analysis of Natural Languages*
CSCI 6040 Offered: Spring 2020-2025 (4140), Spring 2021-2025 (6040)
DASC 6040 - Redesigned the course – textbooks used, lectures, and assignments.
- Prepared & presented lectures, prepared assignments, supervised & mentored TAs.
- Average enrollment of 53 students, majority from Computer Science and Data Science.

CSCI 4180 **Instructor**, *Big Data Analytics | Big Data Analytics and Management*
CSCI 6010 Offered: Fall 2021, Spring 2023 (4180), Fall 2019, Spring 2021, Fall 2021, and Spring
DASC 6010 2023-2025 (6010)
- Redesigned the course – textbooks used, lectures, and assignments.
- Prepared & presented lectures, prepared assignments, supervised & mentored TAs.
- Average enrollment of 39 students, majority from Computer Science and Data Science.

CSCI 4905 **Instructor**, *Data Visualization and Communication*
CSCI 6905 Offered: Fall 2021 (4905), Fall 2021-2022 (6905)
- Created this new course.
- Prepared and presented lectures, prepared assignments.
- Average enrollment of 23 students, with the majority from Data Science.

DASC 6025 **Instructor**, *Data Cleaning and Quality Assessment*
Offered: Fall 2024
- Created this new course.
- Prepared and presented lectures, prepared assignments.
- Average enrollment of 13 students, with the majority from Data Science.

CSCI 4110 **Instructor**, *High Performance Computing*
CSCI 6905 Offered: Spring 2021-2022 (4110), Spring 2022 (6905)
DASC 6905 - Course delievered in collaboration with UC Berkeley.
- Average enrollment of 12 students, with the majority from Computer Science.

### University of Massachusetts, Amherst, MA

Jan 22, 2019 - **Co-instructor**, *COMPSCI 240 – Reasoning Under Uncertainty*
May 9, 2019 - Prepared and presented lectures, prepared homework assignments, quizzes and exams, supervised and mentored the teaching assistants.
- Average class size of 200 students, with the majority of students from Computer Science.

Jan 22, 2019 -
May 9, 2019
**Co-instructor**, *COMPSCI 230 – Computer Systems Principles*
• Redesigned the course content, prepared and presented lectures, prepared project assignments and exams, supervised and the mentored teaching assistants.
• Average class size of 230 students, with the majority of students from Computer Science.

Sep 4, 2018 -
Dec 21, 2018
**Co-instructor**, *COMPSCI 230 – Computer Systems Principles*
• Prepared and presented lectures, prepared project assignments and exams, supervised and mentored the teaching assistants.
• Average class size of 230 students, with the majority of students from Computer Science.

*Kansas State University, Manhattan, KS*

Jan 19, 2016 -
May 6, 2016
**Co-instructor**, *BIOL/CIS 734 – Introduction to Genomics and Bioinformatics*
• Prepared and presented lab material, and graded lab assignments.
• Average class size of 20 students, with a third of the students from Computer Science and two thirds from Biology, and about half the students from minority groups in STEM.

Jul 13, 2015 -
Aug 21, 2015
**Co-instructor**, *BIOL/CIS 890 – NGS Analysis on Beocat and Introduction to Perl programming for Bioinformatics*
• Created and delivered lectures.
• Helped students with in-class hands-on programming assignments.
• Average class size of 20 students, with a fifth of the students from Computer Science and four fifths from Biology, and about half the students from minority groups in STEM.

Jul 7, 2014 -
Aug 1, 2014
**Teaching Assistant**, *BIOL/CIS 890 – NGS Analysis on Beocat and Introduction to Perl programming for Bioinformatics*
• Graded assignments and helped students during office hours.
• Average class size of 20 students, with a fifth of the students from Computer Science and four fifths from Biology, and about half the students from minority groups in STEM.

Jan 21, 2014 -
May 9, 2014
**Co-instructor**, *BIOL/CIS 734 – Introduction to Genomics and Bioinformatics*
• Prepared and presented lab material, and graded lab assignments.
• Average class size of 20 students, with a third of the students from Computer Science and two thirds from Biology, and about half the students from minority groups in STEM.

Jun 10, 2013 -
Aug 2, 2013
**Co-instructor**, *BIOL697 – Programming Perl for Bioinformatics*
• Created and delivered lectures.
• Helped students with in-class hands-on programming assignments.
• Average class size of 20 students, with a fifth of the students from Computer Science and four fifths from Biology, and about half the students from minority groups in STEM.

*Truckee Meadows Community College, Reno, NV*

Jan 18, 2003 -
Dec 14, 2003
**Teaching Assistant**, *Math*
• Helped students use ALEKS assessment and learning software and explained math concepts when students needed clarification.
• Average class size was 20, with about half the students from minority groups in STEM, and about a third of the class were non-traditional students.

Mar 1, 2001 - **Tutor**, *Math*
Jun 30, 2001 • Tutored introductory college math in 1-on-1 and small group settings.

## Professional Experience

Jul 25, 2016 - **Postdoctoral Research Associate**, University of Connecticut, Storrs, CT
Aug 31, 2018 Lead developer for CartograTree (cartogratree.org), an open repository and open-source analytic framework for genomic, phenotypic, and environmental data for forest trees
Advisor: Jill Wegrzyn

### *Kansas State University, Manhattan, KS*

Jan 3, 2012 - **Bioinformatics Specialist**, *Bioinformatics Center*
Jul 15, 2016 • Improved genome assembly for red flour beetle, *Tribolium castaneum.*
• Collaborated with researchers on genomics projects ranging from assembling and annotating genomes, to differential gene expression.

Dec 1, 2008 - **Programmer Analyst**, *Office of Undergraduate Admissions*
Jan 2, 2012 • Created SQL scripts to import data into customer relationship management database and to generate views requested by colleagues.
• Designed and implemented GUI applications to manage database imports.
• Developed an application to create customized information packet for potential undergraduate students.

Jun 7, 2010 - **Bioinformatics Intern**, *Bioinformatics Center*
Jul 30, 2010 • Configured and ran MAKER to generate gene models for *T.castaneum.*
• Installed and ran tRNAscan-SE to predict genes that encode for tRNA for *T.castaneum,* then converted the output to GFF format to use it with Apollo and Augustus.

### *International Game Technology, Reno, NV*

Mar 31, 2008 - **Software Product Assurance Engineer II**
Nov 21, 2008 • Proposed changes to the Gaming Standards Association for the Game to System (G2S) communication protocol used by slot machines/Electronic Gaming Machines (EGMs) to exchange information with back-of-house systems.

Apr 16, 2007 - **Software Product Assurance Engineer I**
Mar 30, 2008 • Developed a GUI application to test the correct implementation of the G2S protocol.

### *Barnes & Noble, Inc., Reno Distribution Center, Reno, NV*

Mar 1, 2004 - **Local Area Network Administrator**
Apr 13, 2007 • Modified the ladder logic programs for the Allen-Bradley programmable logic controllers (PLCs) to improve the flow of totes and packages throughout the warehouse, and to accommodate the extension of the conveyor system.
• Designed and implemented an application to control the shipping of packages; the application received the barcode data from scanners, queried the AS/400 DB2 database to determine the destination, passed the lane assignment to the PLC, and displayed the information about each package in a GUI.

Oct 16, 2000 - **Information & Technology Assistant**
Feb 29, 2004   • Performed systems administration tasks, e.g., configured printers and workstations, troubleshot issues with devices, custom applications, user accounts, networking, etc.