

Leslie Nichole Cook

Curriculum Vitae

EDUCATION

M.S. in Computer Science Midwestern State University December 2023 GPA 3.8
B.S. in Chemistry Midwestern State University December 2020

RESEARCH EXPERIENCE

Oak Ridge National Laboratory: Graduate Research Summer Internship

- Computational Science and Engineering Division, building Trilinos/Amesos2 testbench in ORNL GitLab repository, review and verification of linear solvers within the Exascale Computing Project on matrices extracted from optimal power flow analysis of Western US, Eastern US, and Texas power grids on OLCF clusters. (May 2023 - July 2023)
Mentor: Slaven Peles

National Institute of Health: Summer Internship Program

- Biomedical Informatics Section, identifying tools to connect text mining with the visualization power of R within the HuRIS (Human Research Information System) database. (June 2022 - August 2022)
Mentors: Mustapha Mesghanni, Johns Hopkins Bayview Medical Center, and Dr. Jia-Ling Lin, Director of NIDA

Midwestern State University, Wichita Falls, TX

- Biochemistry Research Group, studying protein aggregation of Amyloid- β and α -synuclein known to be primary contributors to Alzheimer's and Parkinson's disease. (August 2021-present)
Mentor: Dr. Fu-Cheng Liang, Ph.D. Biochemistry, Caltech
- Non-Linear Science Research Group, studied entropy trends in biophysical processes using Langevin and Fokker-Planck dynamics (December 2021- May 2022)
Mentor: Dr. Preet Sharma, Ph.D. Physics

PROGRAMMING LANGUAGES

- C++, C, CUDA, Python, R, Octave

OPERATING SYSTEMS

- MacOS, Windows, Linux

SOFTWARE / SCRIPTING

- [Trilinos](#), [HyKKT](#), [cuSolver](#), [rocSolver](#), [lpopt](#), [coinHSL](#), [SuiteSparse](#), CMake, Makefile, Bash, Zsh, Lmod

SUPERCOMPUTING CLUSTERS

- Oak Ridge Leadership Computing Facility (OLCF)
 - Frontier, Crusher, Summit, Ascent
- Texas Advanced Computing Center (TACC)
 - LoneStar6, Frontera, Stampede2, Maverick2

PRESENTATIONS AND CONFERENCE PROCEEDINGS

L. Cook, S. Peles "Overview of Direct Sparse Linear Solvers for Power Grid Optimization Problems" Oak Ridge National Laboratory, Computational Science and Engineering Division, GRSI, Oak Ridge, TN, 2023.

M. Morgan, S. Ludi, L. Cook, A. Warren. "Impact of Usability Heuristics on User Satisfaction Among Coding Apps for Children" in 2023 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC), Washington D.C., USA, 2023.

L. Cook, J.L. Lin, M. Mezghanni "Discovering Emerging Patterns in Clinical Research Data with R" National Institute on Drug Abuse, NIH Intramural Research Program, Baltimore, MD, August 3-4. 2022. [GitHub](#)

L. Cook, P. Sharma, "Entropy Production and Entropy Generation of Protein Aggregate Models" 3rd Annual Biophysical and Quantitative Biology Conference and Workshop, Midwestern State University, Wichita Falls, TX, January 20-22, 2022. Reports and Advances of Physical Sciences. [GitHub](#)

L. Cook, P. Sharma, "Entropic Analysis of Protein Aggregation Using Langevin Equations and Fokker-Planck Dynamics" #3478, 66th Biophysical Society Annual Meeting, San Francisco, CA, February 19-23, 2022. Biophysical Journal. <https://doi.org/10.1142/S2424942422400035>

L. Cook, P. Sharma, "Protein Aggregation Review and Entropy Trends in a Model Independent Protein Aggregation Process at Various Stages using Fokker-Planck Dynamics" under review Heliyon, Elsevier, 2022. Cell Press. [GitHub](#)

AWARDS AND RECOGNITIONS

- [ACM SIGHPC](#) Fellowship recipient, 2022-2023
- Outstanding Graduate Woman of the Year, MSU Texas 2022
- MSU Woman of the Year Nominee, MSU Texas 2023
- Golden Key Honors Award, 2020
- Welch Chemistry Scholarship recipient, MSU Texas 2017-2020

PROFESSIONAL AFFILIATIONS AND SOCIETIES

- Women in High Performance Computing (WHPC)
- Association for Computing Machinery (ACM)
- Biophysical Society (BPS)
- American Chemical Society (ACS)
- MSU Texas Computer Science Research Group

CONTACT INFORMATION

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REFERENCES

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Dr. Eduardo Colmemares-Diaz Professor of Computer Science Department of Computer Science Midwestern State University Wichita Falls, TX 76308 Email: eduardo.colmenares@msutexas.edu	Dr. Fu-Cheng Liang Professor of Biochemistry Department of Chemistry and Physics Midwestern State University Wichita Falls, TX 76308 Email: fucheng.liang@msutexas.edu