

## Oluwatosin Oluwadare

Assistant Professor, Computer Science and Bachelor of Innovation

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### **Research Interests:**

Machine learning, Artificial Intelligence, Data Mining, Deep Learning, Bioinformatics, Genomics, Computational Biology, Hierarchical Reinforcement Learning,

### **Education:**

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|-------------|---|---------------|
| 2015 – 2019 | University of Missouri, Columbia,<br>Ph.D., Computer Science.<br>Dissertation Title:<br>Data Mining and Machine Learning methods for chromosome conformation data analysis.<br>Ph.D. Committee: Jianlin Cheng, Marjorie Skubic, Dong Xu (Computer Science), Heather Hunt (Biomedical, Biological & Chemical Engineering). | Columbia, MO  |
| 2013 – 2015 | University of Texas, Arlington,<br>M.S. in Computer and Information Science.<br>Master's Thesis:<br>Gait Analysis on a Smart Floor for Health Monitoring.<br>Advisor: Manfred Huber.  | Arlington, TX |
| 2007 – 2012 | Federal University of Technology, Akure,<br>B. Tech. in Computer Science.   | Ondo, Nigeria |

### **Research Experience:**

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|----------------|---|----------------------|
| 2019 – present | University of Colorado, Colorado Springs,<br>Assistant Professor.<br>Department of Computer Science.                            | Colorado Springs, CO |
| 2015 – 2019    | University of Missouri, Columbia,<br>Graduate Research Assistant.<br>Department of Electrical Engineering and Computer Science. | Columbia, MO         |
| 2013 – 2015    | University of Texas, Arlington,<br>Graduate Research Assistant.<br>Department of Computer Science and Engineering.              | Arlington, TX        |

### **Teaching Experience:**

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| 2019 – present | University of Colorado, Colorado Springs,<br>Assistant Professor.<br>ENTP 1000 – Introduction to Entrepreneurship.<br>CS 4435/5435- Data Mining | Colorado Springs, CO |
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2018 – 2019	University of Missouri, Columbia, Teaching Assistant. CMP_SC 1050 – Algorithm design and Programming 1.	Columbia, MO
2014	University of Texas, Arlington, Teaching Assistant. CSE1301 – Computer Literacy.	Arlington, TX
2008 – 2012	Federal University of Technology, Akure, Tutor: Introduction to programming.	Ondo, Nigeria

### **Publications:**

#### a) Journal Articles:

- Highsmith MR, Oluwadare O, Cheng J. Deep Learning For Denoising Hi-C Chromosomal Contact Data. bioRxiv. 2019 Jan 1:692558. (*currently under journal peer review*)
- Oluwadare, O., Highsmith, M., Turner, D., Lieberman-Aiden, E., & Cheng, J. (2020). GSDB: a database of 3D chromosome and genome structures reconstructed from Hi-C data. *BMC Molecular and Cell Biology*, 21(1), 1-10.
- Oluwadare, Oluwatosin, Max Highsmith, and Jianlin Cheng. An Overview of Methods for Reconstructing 3-D Chromosome and Genome Structures from Hi-C Data. *Biological Procedures Online* 21.1 (2019):7.
- Trieu T, Oluwadare O, Cheng J. Hierarchical Reconstruction of High-Resolution 3D Models of Large Chromosomes. *Scientific Reports*. 2019;9.
- Trieu, Tuan\*, Oluwatosin Oluwadare\*, Julia Wopata, and Jianlin Cheng. "GenomeFlow: A Comprehensive Graphical Tool for Modeling and Analyzing 3D Genome Structure." *Bioinformatics* (2018) (\* co-first author)
- Oluwadare, Oluwatosin, Yuxiang Zhang, and Jianlin Cheng. A maximum likelihood algorithm for reconstructing 3D structures of human chromosomes from chromosomal contact data. *BMC genomics* 19.1 (2018): 161.
- Oluwadare, Oluwatosin, and Jianlin Cheng. "ClusterTAD: an unsupervised machine learning approach to detecting topologically associated domains of chromosomes from Hi-C data." *BMC bioinformatics* 18.1 (2017): 480.
- J. Nowotny, A. Wells, O. Oluwadare, L. Xu, R. Cao, T. Trieu, C. He, J. Cheng. GMOL: an interactive tool for 3D genome structure visualization. *Scientific Reports*, accepted, 2016
- J. Nowotny, S. Ahmed, L. Xu, O. Oluwadare, H. Chen, N. Hensley, T. Trieu, R. Cao, J. Cheng. Iterative reconstruction of three-dimensional models of human chromosomes from chromosomal contact data. *BMC bioinformatics*, 16(1):338, 2015.

#### b) Conference and Symposium Proceedings:

- "Iterative reconstruction of three-dimensional models of human chromosomes from chromosomal contact data.", MCBIOS Conference, Memphis, TN, March 3-5, 2016
- 2019, Keynote speaker at ROCKY 2019 Bioinformatics Conference. Dec 5 – 7, 2019 | Aspen/Snowmass, CO
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### **Professional Activities:**

- a) Journal Reviewing:
- Genes
  - IEEE/ACM Transactions on Computational Biology and Bioinformatics
  - Neural Networks
  - Electronics
  - Biomolecules
  - Applied Sciences

### **Awards and Honors:**

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| 2016        | Missouri Building Entrepreneurial Capacity program (MOBEC) Grant for EyeCYou Prototyping |
| 2015        | Microsoft Imagine Cup 2015 USA Finalist: National Best 4 Finalist                        |
| 2012        | First bank of Nigeria Award for the best graduating students.                            |
| 2012        | University prize 2011/2012 session, FUTA, Nigeria.                                       |
| 2011        | Commendation Award, Accenture, Nigeria   |
| 2010 – 2012 | University Merit Award, FUTA, Nigeria  |

### **Mobile App:**

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| 2015 - present | <b>EyeCYou</b><br>A mobile app for the visually impaired, available on Google Play store and App store. <a href="http://www.eyecyouapp.com/">http://www.eyecyouapp.com/</a> |
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### **Mobile App Media Coverage:**

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| 2017 | <i>MU PhD. Student launches app to help visually impaired.</i> KOMU-TV News. December 5, 2017.<br><a href="https://www.komu.com/news/mu-phd-student-launches-app-to-help-visually-impaired/page/3">https://www.komu.com/news/mu-phd-student-launches-app-to-help-visually-impaired/page/3</a>  |
| 2015 | <i>App helps visually impaired connect.</i> UT Arlington News. August 5, 2015.<br><a href="http://www.theshorthorn.com/news/app-helps-visually-impaired-connect/article_f26d5012-3ada-11e5-847c-83e452f6fe0f.html">http://www.theshorthorn.com/news/app-helps-visually-impaired-connect/article_f26d5012-3ada-11e5-847c-83e452f6fe0f.html</a>  |
| 2015 | <i>Developers look to create disability apps.</i> Marketplace News. July 22, 2015.<br><a href="https://www.marketplace.org/2015/07/22/health-care/developers-look-create-disability-apps">https://www.marketplace.org/2015/07/22/health-care/developers-look-create-disability-apps</a>  |
| 2015 | <i>Connect Ability tech challenge has developers creating applications and hardware for those with special needs.</i> Jerry Hildenbrand. July 22, 2015.<br><a href="https://www.androidcentral.com/connect-ability-tech-challenge-has-developers-creating-applications-and-hardware-those-special-needs">https://www.androidcentral.com/connect-ability-tech-challenge-has-developers-creating-applications-and-hardware-those-special-needs</a> |
| 2015 | <i>A Tech Challenge To Empower People With Disabilities.</i> KERA NEWS. July 21, 2015.<br><a href="http://www.keranews.org/post/tech-challenge-empower-people-disabilities">http://www.keranews.org/post/tech-challenge-empower-people-disabilities</a>  |

## **Research Support and/or Scholastic Performance**

### **Ongoing Research Support**

Departmental Start-Up Grant, University of Colorado

Oluwadare (PI) 08/19/2019 – 08/20/2022

Research Start-Up Funds

The purpose of this grant is to set up the PI's laboratory and fund preliminary studies needed to be competitive for extramural research support.

Role: PI

UCCS Faculty Seed Grant

Oluwadare (PI) 08/01/2020 – 08/20/2021

Committee on Research and Creative Works Seed Grant

*Development of algorithms and computational tools to study the spatial organization of bacteria chromosomes and genome for function discovery.*

The goal of this project is to develop computational methods and algorithms that will infer the 3D organization of bacteria that will answer questions about bacteria roles, the good, the bad, and the ugly, and about their chromosome topology and structure.

Role: PI