

# Mingda Wu

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## EDUCATION

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| <b>University of Wisconsin-Madison</b>   Madison, WI, USA<br>Master of Science in <i>Biological Systems Engineering</i>   | Aug 2024-Present                       |
| <b>Capital Normal University</b>   Beijing, China<br>Bachelor of Science in <i>Geographic Information Sciences</i><br>GPA: 4.34/5 (93.4/100), Major rank 1  | Sep 2023-Jun 2024<br>Sep 2020-Jun 2021 |
| <b>Northern Illinois University</b>   DeKalb, IL, USA<br>Bachelor of Science in <i>Geography</i> (Transfer)<br>GPA: 3.99/4, Dean's List for all semesters, Full University Honors, Summa Cum Laude, GIS Certificate | Aug 2021-May 2023                      |

## RESEARCH AND ACADEMIC EXPERIENCES

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| <b>Phenology-Guided Corn Yield Estimation</b><br><i>Digital Agricultural Lab</i> , University of Wisconsin-Madison<br>Master's research (advised by Dr. Zhang)  | Aug 2024 - Present  |
| • Estimate corn yield at the county level using multi-stream spatiotemporal DL models<br>• Leverage phenology information to assist model learning<br>• Apply Transformer-based architecture to improve performance<br>• End-of -season and in-season capability<br>• Conference presentation, Journal publication (upcoming) |                     |
| <b>Bitemporal Residual Attention Network for Wildfire Burn Severity Mapping</b><br><i>Spatial Computing and Data Mining Lab</i> , University of Wisconsin-Madison<br>Undergraduate research (advised by Dr. Huang)  | Jan 2023 - Sep 2024 |
| • Assess wildfire severity at the pixel level with custom attention U-Net models<br>• Employ a wildfire-sensitive remote sensing index to aid model convergence<br>• Journal publications and conference presentations  |                     |
| <b>Multiclass Wildfire Burnt-Area Segmentation</b><br><i>Department of Earth, Atmosphere, and Environment</i> , Northern Illinois University<br>Undergraduate research (advised by Dr. Luo and Dr. Haberlie)  | Jan 2023 - May 2024 |
| • Detect wildfire burn areas using basic segmentation models<br>• Capstone publication and conference presentations   |                     |
| <b>Journal Paper Review</b>   | 2025                |
| • International Journal of Applied Earth Observation and Geoinformation (3 reviews)<br>• Science of Remote Sensing (2 reviews)<br>• Advances in Space Research (1 review)<br>• Ecological Informatics (1 review)  |                     |

## PUBLICATIONS

- Fang, J., **Wu, M.**, Zhang, Z., Luo, W. (2025). Leveraging AlphaEarth Foundations Embeddings for High-Accuracy County-Scale Corn and Soybean Yield Estimation (TechRxiv preprint)  
<https://www.techrxiv.org/users/775198/articles/1334677-leveraging-alphaearth-foundations-embeddings-for-high-accuracy-county-scale-corn-and-soybean-yield-estimation>
- **Wu, M.**, Huang, Q., Sui, T., Bo, P & Yu, M. (2024). A Remote Sensing Spectral Index Guided Bitemporal Residual Attention Network for Wildfire Burn Severity Mapping. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. <https://ieeexplore.ieee.org/abstract/document/10680302>
- Sui, T., Huang, Q., **Wu, M.**, Wu, M., & Zhang, Z. (2024). BiAU-Net: Wildfire Burnt Area Detection Based on Bi-temporal Sentinel-2 Images and U-Net with Attention Mechanism. *International Journal of Applied*

### *Earth Observation and Geoinformation.*

<https://www.sciencedirect.com/science/article/pii/S1569843224003881>

- **Wu, M.**, Huang, Q., Sui, T., & Wu, M. (2023). *Pixel-wise Wildfire Burn Severity Classification with Bi-temporal Sentinel-2 Data and Deep Learning*. 2023 6th International Conference on Big Data Technologies (ICBDT 2023). <https://doi.org/10.1145/3627377.3627433> (**Excellent Presentation Award**)
- **Wu, M.** (2023). Pixel-Wise Machine Learning and Deep Learning Methods Implementation on Multi-Class Wildfire Mapping. *Honors Capstones*, 1464. <https://huskiecommons.lib.niu.edu/studentengagement-honorcapstones/1464> (**Third Prize poster presentation**)

## PRESENTATIONS

- **Wu, M.**, Wang, X., and Zhang, Z., *Corn Yield Prediction Using Phenology-Informed Remote Sensing Data and Deep Learning Methods* [Poster]. 2025 American Geophysical Union Fall Meeting, New Orleans, LA. December 15–19, 2025.
- **Wu, M.**, Sui, T., Huang, Q., & Wu, M. (2024). *Bi-RAUnet: A Multiclass Wildfire Burnt Area Assessment Framework using Deep Learning and Sentinel-2 Imagery* [Oral]. Association of American Geographers (AAG) 2024, Honolulu, Hawaii, United States of America. <https://aag.secure-platform.com/aag2024/solicitations/57/sessiongallery/7886/application/31267> (**Paper Competition Winner**)
- Huang, Q., **Wu, M.**, & Sui, T. (2023). *Empowering Wildfire Damage Assessment with Bi-temporal Sentinel-2 Data and Deep Learning* [Oral]. 2023 American Geophysical Union (AGU) Fall Meeting, San Francisco, CA, United States of America. (Invited)
- **Wu, M.** (2023). *Pixel-Wise Machine Learning and Deep Learning Methods Implementation on Multi-Class Wildfire Mapping* [Poster]. Illinois GIS Association (ILGISA) - the Geographic Society of Chicago (GSC) Student Poster Symposium, Chicago, IL, USA. (**First Prize in undergraduate group**)
- Sui, T., **Wu, M.**, Wu, M., & Huang, Q. (2023). *Empowering Urban Wildfire Burnt Area Detection with Deep Learning* [Oral]. Global Smart Cities Summit Cum the 3rd International Conference on Urban Informatics (GSCS & ICUI 2023) Conference, Hong Kong, China.

## WORK EXPERIENCES

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| <b>Teaching Assistant</b>   Madison, WI, USA<br><i>Success Works</i> , University of Wisconsin-Madison  | Aug 2025-Present  |
| <ul style="list-style-type: none"><li>• Inter-LS 215: Communicating About Your Careers</li><li>• Comm-B writing course for undergraduates</li><li>• Facilitating discussion and writing conference about career exploration</li></ul>                   |                   |
| <b>Corn Breeding Field Assistant</b>   Madison, WI, USA<br><i>Department of Bacteriology</i> , University of Wisconsin-Madison  | Jun 2025-Aug 2025 |
| <ul style="list-style-type: none"><li>• Assisting field sample collection</li><li>• Hands-on experience in corn growing stages</li><li>• Contribute to key research stages of the agricultural area, has been reported in news articles</li></ul>       |                   |
| <b>Teaching Assistant</b>   Madison, WI, USA<br><i>Department of Geography</i> , University of Wisconsin-Madison  | Jan 2025-May 2025 |
| <ul style="list-style-type: none"><li>• Geog 573: Advanced Geocomputing and Geospatial Big Data Analysis</li><li>• Design materials and deliver lectures about Python and GEE programming in GIS topics</li><li>• 4.5/5 by student evaluation</li></ul> |                   |
| <b>Senior News Photographer</b>   DeKalb, IL, USA<br><i>Northern Star</i> , Northern Illinois University  | Aug 2021-May 2023 |
| <b>Scanning Technician</b>   DeKalb, IL, USA<br><i>Founders Memorial Library</i> , Northern Illinois University   | Jan 2022-May 2022 |
| <b>Photographer</b>   Beijing, China<br><i>Youth Radio &amp; College of Resource Environment and Tourism</i> , Capital Normal University  | Sep 2020-Jun 2021 |

## HONORS AND AWARDS

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| Conference Presentation Funds, University of Wisconsin-Madison | Sep, 2025 |
| Outstanding Graduates, Capital Normal University               | May 2024  |

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| First-Class Scholarship, Capital Normal University   | Nov 2023 |
| Academic Merit Scholarship, Capital Normal University  | Nov 2023 |
| Excellent Presentation Award, 2023 6 <sup>th</sup> International Conference on Big Data Technologies | Sep 2023 |
| Summa Cum Laude, Northern Illinois University  | May 2023 |
| Dean's List nomination for four semesters, Northern Illinois University                              | May 2023 |
| GIS Certificate, Department of Earth, Atmosphere and Environment, Northern Illinois University       | May 2023 |
| Richard E. Dahlberg Scholarship, Northern Illinois University  | May 2023 |
| First Prize of the undergraduate group, ILGISA Poster Symposium                                      | May 2023 |
| Full University Honors, Northern Illinois University   | Apr 2023 |
| Third Prize of the environment category, NIU CURE Poster Symposium                                   | Apr 2023 |
| Second Prize of general news photo, Illinois College Press Association                               | Feb 2023 |
| Third-Class Scholarship, Capital Normal University   | May 2022 |
| Outstanding Student Cadre Award, Capital Normal University   | May 2021 |
| Third Prize in camera group, Second Annual Fall Photo Contest, Capital Normal University             | Nov 2020 |
| Fourth Prize in 2020 Fall Photo Contest, Capital Normal University                                   | Oct 2020 |

## **EXTRACURRICULAR ACTIVITIES**

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| <b>Volunteer of “Week of Welcome 2022”   DeKalb, IL, USA</b>                   | Aug 2022 |
| Responsible for organizing the welcome event and arranging the welcome picnic. |          |
| <b>Volunteer of “Give DeKalb 2022”   DeKalb, IL, USA</b>                       | Mar 2022 |
| Participated in the annual fund-raising event of DeKalb County.                |          |