Yimeng Liu

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OBJECTIVE

I am pursuing Ph.D. degree in **Computer Science and Engineering** at Michigan State University. I earned my Bachelor of Science degree in **Mathematics** from Virginia Tech. My research focuses on **Artificial Intelligence of Things (AIoT)** and wireless sensing. I particularly focus on **mmWave imaging integrated with machine learning** and **sensing application in agriculture and healthcare**. I am actively seeking an internship position as a **Research Scientist**.

EDUCATION

Michigan State University, USA *Aug. 2023 - Present*
Ph.D. in Computer Science & Engineering Anticipated Graduation: *May. 2027*

Virginia Tech, USA *Sep. 2019 - May. 2023*
B.S. in Mathematics
GPA: 3.72 **Dean's List:** *Fall 2019, Spring 2020, Fall 2020, Spring 2021, Fall 2021, Spring 2022*

PUBLICATION

[6] **Y. Liu**, M. Gan, H. Zeng, L. Li, Y. Dong, and Z. Cao, "Hydra: Accurate multi-modal leaf wetness sensing with mm-wave and camera fusion," In Proceedings of ACM *MobiCom*, 2024.

[5] **Y. Liu**, M. Gan, G. Li, Y. Dong, and Z. Cao, "Adonis: Neural-enhanced Fine-grained Leaf Wetness Sensing with Efficient mmWave Imaging," In Proceedings of IEEE *INFOCOM*, 2025.

[4] **Y. Liu**, M. Gan, H. Zeng, Y. Ren, G. Li, J. Lin, Y. Dong, X. Tan and Z. Cao, "Proteus: Enhanced mmWave Leaf Wetness Detection with Cross-Modality Knowledge Transfer," In Proceedings of ACM *SenSys*, 2025.

[3] Y. Ren, G. Li, **Y. Liu**, Y. Dong, and Z. Cao, "AeroEcho: Towards Agricultural Low-power Wide-area Backscatter with Aerial Excitation Source," In Proceedings of IEEE *INFOCOM*, 2025.

[2] M. Gan, **Y. Liu**, L. Liu, C. Wu, Y. Dong, H. Zeng, and Z. Cao, "Poster: mmleaf: Versatile leaf wetness detection via mmwave sensing," In Proceedings of ACM *MobiSys*, 2023.

[1] R. Wang, **Y. Liu**, and R. Müller, "Detection of passageways in natural foliage using biomimetic sonar," *Bioinspiration & Biomimetics* 17.5 (2022): 056009.

RESEARCH EXPERIENCE

Edge Intelligence and Networking Lab, Michigan State University *May. 2022 - present*
Research Assistant (Advisor: Dr. Zhichao Cao)

Driving Risk Modelling for Cognitive Impairment Senior *Ongoing Project*

- Built a driving simulator prototype to detect and evaluate cognitive impairments in senior drivers, focusing on driving risks.
- Integrate Inertial Measurement Unit (IMU) and mmWave radar for head movement detection and design a neural network with biometrics and driving behavior data to identify driving risks.

mmWave Synthetic Aperture Radar (SAR) Super Resolution *Ongoing Project*

- Combine Genetic Artificial Intelligence and signal processing for high efficiency, high resolution mmWave imaging technique.

mmWave Radar for Agriculture

- Build a testbed and the algorithm for mmWave SAR high resolution RF imaging.
- Design a novel fusion technique for mmWave SAR and RGB imaging and develop a 3D object detection method with Transformer architecture to improve accuracy compare with traditional method for about 12%.
- Optimize the understanding of RF imaging-based computer vision denoising and phase angle enhancement for texture detection and develop a neural network to distill the knowledge from RGB camera to improve accuracy for about 10% compared with state-of-the-art.
- Define a novel agriculture metric: Leaf Wetness Level. Based on the signal processing to provide accurate detection and design a Contrastive Learning model based on signal features to enhance detection precision and improve regression accuracy with 70% compared with traditional sensor.

Bioinspired Science and Technology Center, Virginia Tech *Nov. 2020 – May. 2022*

Research Assistant (Advisor: Dr. Rolf Müller)

- Develop a bat-inspired robotic system with acoustic signal processing for precise detection of foliage passageways.
- Design a Transfer Learning algorithm to improve model performance, achieve more than 95% accuracy and enhance explainability for interpretability.
- Build a 3D reconstruction system for bat movements with camera footage.

Hauf Lab, Virginia Tech *Aug. 2020 – Dec. 2020*

Research Assistant (Advisor: Dr. Silke Hauf)

- Design algorithms for nucleus extraction, segmentation and 3D reconstruction from microscope images.
- Assess RNA based on 3D visualization for nucleus status and damage evaluation.

TEACHING EXPERIENCE

Michigan State University, USA *Aug. 2023 - Present*

Teaching Assistant

- CSE 232: Introduction to Programming II (C++) (Fall 2023)
- CSE 220: Programming in C (Fall 2024)
- CSE 410: Operating Systems (Spring 2024)

Virginia Tech, USA *Jan. 2023 - May. 2023*

Teaching Assistant

- CS 3744: Introduction to GUI Programming and Graphics

SKILLS

Programming Skills:

***Programming Languages*:** Python (PyTorch, TensorFlow), C/C++, Java, MATLAB, JavaScript, HTML, CSS.

Platform and Tools: Git, Arduino, mmWave Studio.