Curriculum Vitae

LAPONE TECHAPINYAWAT

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Professional Summary

PhD candidate in Geospatial Computer Science with a 4.0 GPA, specializing in scalable and efficient geospatial and urban infrastructure modeling for large-scale urban datasets. Skilled in spatial algorithm development and deep learning, with experience on NSF- and NASA-funded projects. Expertise in UAV data processing, Real-Time Kinetic (RTK) Positioning, photogrammetry, and integration of raster and vector data for high-resolution urban analysis.

Core Skills

Data Processing & Spatial Algorithms: Advanced skills in scalable data workflows for high-volume spatial datasets.
Machine Learning for Spatial Data: Neural networks (GNNs, CNNs), model building from scratch in PyTorch.
Geospatial Tools & Remote Sensing: GIS software, UAV, photogrammetry, and DEM processing. for urban infrastructure analysis.

Education

Ph.D. in Geospatial Computer Science, Texas A&M University – Corpus Christi
Expected Graduation: Fall 2025 | **GPA: 4.0**
- Dissertation: Development of Integrated Hydrological and Geospatial Methods for Urban Stormwater Management.

M.Sc. in Geological Engineering, University of Idaho | **GPA: 4.0**
B.Sc. in Geology (2nd Class Honors), Chulalongkorn University, Thailand

Research Contributor

NSF AI-powered Diagnosis Augmented by Self-sustaining Sensing System for Intelligent Wastewater Infrastructure Management [2318641]

NSF Where the Runoff Begins: Rethinking the Role of Impervious Area in Urban Stormwater Management [2050986]

NASA Toward Environmentally and Socially Equitable Stormwater Management Fees [80NSSC22K1670]

Professional Experience

2022-2024	**Research Assistant**, Texas A&M University – Corpus Christi	
2020-2021	**Teaching Assistant**, University of Idaho	
2015-2019	**Geophysicist**, PTT Exploration and Production P.C.L., Thailand (PTTEP)	
2014	**Intern**, PTT Exploration and Production P.C.L., Thailand (PTTEP)	
2013	**Intern**, Department of Groundwater Resources, Thailand	

Research publication

2024 **Lapone Techapinyawat**, Wenlu Wang, Mehrube Mehrubeoglu, and Hua Zhang. 2024. GraphParcelNet: Predicting Parcel-Level Imperviousness from Geospatial Vector Data using Graph Neural Networks. In The 32nd ACM International Conference on Advances in Geographic Information Systems (SIGSPATIAL '24), October 29-November 1, 2024, Atlanta, GA, USA. ACM, New York, NY, USA, 11 pages. https://doi.org/10.1145/3678717.3691281

2024 Hannah Garcia, **Lapone Techapinyawat**, Jim Lee, Hua Zhang. (2024). Equitable stormwater utility fees: an integrated analysis of environmental, socioeconomic and infrastructure factors at the community scale. Environmental research infrastructure and sustainability. https://doi.org/10.1088/2634-4505/ad8305

2024 **Lapone Techapinyawat**, Aaliyah Timms, Jim Lee, Yuxia Huang, Hua Zhang. (2024). Integrated urban land cover analysis using deep learning and post-classification correction. Computer-Aided Civil and Infrastructure Engineering,1–20. https://doi.org/10.1111/mice.1327

2024 Jim Lee, Hua Zhang, Yuxia Huang. (2024). Toward a more socially equitable stormwater management fee: The case of Corpus Christi in Texas, USA. Environment and Planning B: Urban Analytics and City Science. https://doi.org/10.1177/23998083231207535. *(Contribution recognized in the acknowledgment section)*

2023 **Lapone Techapinyawat**, Ian Goulden-Brady, Hannah Garcia, Hua Zhang. (2023). Aerial Characterization of Surface Depressions in Urban Watersheds. Journal of Hydrology. https://doi.org/10.1016/j.jhydrol.2023.129954

Research poster and presentation

2023 **Lapone Techapinyawat**, Ian Goulden-Brady, Hannah Garcia, Hua Zhang. (2023). Utilizing Unmanned Aircraft Systems (UAS) for Identifying Surface Depressions in Urban Watersheds: How Reliable Is It?. Presentation presented at: AGU Fall Meeting 2023. San Francisco, CA.

2023 Hannah Garcia, **Lapone Techapinyawat**, Ian Goulden-Brady, Aaliyah Timms, Jim Lee, Lucy Huang, Hua Zhang. Investigating environmental justice in stormwater utility fees at the parcel scale using an unmanned aircraft system and machine learning. Presentation presented at: 2023 World Environmental & Water Resources Congress; Henderson, NV

2023 Hannah Garcia, Ian Goulden-Brady, **Lapone Techapinyawat**, Aaliyah Timms, Nathaniel Galvan. An improved understanding of stormwater flow: combining multi-sensor observation and hydrograph analysis in the Texas Coastal Bend region. Poster presented at: Symposium for Student Innovation, Research, and Creative Activities; Corpus Christi, TX

2023 Hannah Garcia, **Lapone Techapinyawat**, Ian Goulden-Brady, Aaliyah Timms, Jim Lee, Lucy Huang, Hua Zhang. Are stormwater utility fees reasonable? A parcel-scale investigation using an unmanned aircraft system and machine learning. Poster presented at: Texas Water 2023; Houston, TX

2023 Hannah Garcia, Ian Goulden-Brady, **Lapone Techapinyawat**, Aaliyah Timms, Nathaniel Galvan. An improved understanding of stormwater flow: combining multi-sensor observation and hydrograph analysis in the Texas Coastal Bend region. Poster presented at Texas A&M University System 18th Annual Pathways Student Research Symposium; March 2-3, 2023; Texas A&M University at Galveston

2023 Aaliyah Timms, Ian Goulden-Brady, **Lapone Techapinyawat**, Hannah Garcia, Wen Zhong. Investigating the impacts of surface imperviousness on runoff generation through laboratory experiments based on an advanced hydrology apparatus. Poster presented at Texas A&M University System 18th Annual Pathways Student Research Symposium; March 2-3, 2023; Texas A&M University at Galveston

Financial Award

2024	NSF Travel Award for ACM SIGSPATIAL 2024
2024	Geospatial Surveying Engineering Scholarship, Texas A&M University – Corpus Christi
2024	College of Engineering Scholarship (Fall), Texas A&M University – Corpus Christi
2024	College of Engineering Scholarship (Summer), Texas A&M University – Corpus Christi
2022-Present	RA assistantship award, Texas A&M University – Corpus Christi
2020-2021	TA assistantship award, University of Idaho
2011-2015	Fully funded scholarship awards from PTT Exploration and Production PCL (PTTEP) during undergraduate study

Technical Skills

Programming:	Python, SQL databases
Geospatial Analysis:	Spatial and statistical analysis, vector-based algorithm development, GIS software (as listed in research publications)
AI & Machine Learning:	Specialized in deep learning for spatial applications, particularly Graph Neural Networks
Remote Sensing:	UAV, photogrammetry for orthomosaic/ digital elevation model creation
Urban Hydrology:	Stormwater runoff modeling with raster and vector integration