Xu Weng Mr.

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Education

Nanyang Technological University Singapore
Ph.D. in Electrical and Electronic Engineering 2021 - 2025 *(expected)*
- Advisor: Prof. Keck Voon Ling
- Research area: Localization, Spatial Computing, AIoT

Duke University Durham, USA
Ph.D. in Electrical and Computer Engineering 2020 - 2021
- Advisor: Prof. Maria Gorlatova
- Quit due to Visa Issue

Beihang University Beijing, China
M.Eng. in Electronic and Information Engineering 2015 - 2018
- Advisor: Prof. Yanhong Kou
- Research area: GNSS Receiver Design for Short Multipath Mitigation

Nanjing University of Aeronautics and Astronautics Nanjing, China
B.Eng. in Information Engineering 2011 - 2015
- GPA: 87/100

Experience

Keysight Technologies 2019.04 - 2020.12
- Developed features of IEEE 802.15.4-2015 UWB PHY and IEEE 802.15.4z UWB Enhanced Ranging Device PHY for "PathWave Signal Generation For IoT" (C#)

Skills

Languages: Chinese (Native), English (TOEFL 105, GRE 331).

Programming: `Python`, `MATLAB`, `C/C++`, `C#`, `Java`, `Swift`, `PyTorch`, `ARKit`, `OpenCV`, `Android`, `.NET Framework`, `LaTeX`.

Selected Awards and Honors

- **IPSN Best Poster Runner-up**, ACM/IEEE 2024
- **APWiMob Best Paper Award**, IEEE 2023
- **NTU Research Scholarship**, Nanyang Technological University 2021
- **Duke University Ph.D. Fellowship**, Duke University 2020
- **Outstanding Graduate Student**, Beihang University 2018
- **National Scholarship**, Ministry of Education of China 2014
- **Suzhou Industrial Park Scholarship**, Suzhou Government 2013

Selected Projects

Data-driven Localization using Smartphone Measurements *2021 - now*
- Robust End-to-End Learning for Neural Pseudorange Correction for Localization with Android GNSS Measurements (Python, PyTorch, Java, MATLAB)

Augmented Reality Enabled by Mobile and Wearable Measurements *2023 - now*
- Outdoor AR-assisted GNSS Satellite Selection (Java, Android)
- Multi-user AR Enabled by UWB and VIO Measurements (Swift, iOS)
- Equipping Wearable AR Glasses with Global Spatial Awareness (Java, Meta Quest 3)

GNSS Receiver Design for Short Multipath Mitigation *2015 - 2018*
- Designing Short Multipath Insensitive Code Tracking Loop for GNSS Baseband Signal Processing (C++)

Publications

1. **Xu Weng**, K.V. Ling, Haochen Liu, Bingheng Wang, Kun Cao. NeRC: Neural Ranging Correction through Differentiable Moving Horizon Location Estimation. https://doi.org/10.48550/arXiv.2508.14336. *Under Review*.
2. **Xu Weng**, K.V. Ling, Ling Zhao. Receding Horizon Recursive Location Estimation. arXiv preprint arXiv:2506.18430 (2025). https://doi.org/10.48550/arXiv.2506.18430.
3. **Xu Weng**, Yuhui Jin, K.V. Ling. GnssQuest: Questing for Suitable GNSS Satellites through Augmented Reality. In *the 22nd ACM Conference on Embedded Networked Sensor Systems (SENSYS '24)*, November 4–7, 2024, Hangzhou, China. ACM, New York, NY, USA, 2 pages. https://doi.org/10.1145/3666025.3699411. (Poster)
4. **Xu Weng**, K. V. Ling, Haochen Liu and Kun Cao, Towards End-to-End GPS Localization with Neural Pseudorange Correction, *2024 27th International Conference on Information Fusion (FUSION)*, Venice, Italy, 2024, pp. 1-7. https://doi.org/10.23919/FUSION59988.2024.10706359.
5. **Xu Weng**, K.V. Ling, Haochen Liu. PrNet: A Neural Network for Correcting Pseudoranges to Improve Positioning With Android Raw GNSS Measurements. In *IEEE Internet of Things Journal*, vol. 11, no. 14, pp. 24973-24983, 2024. https://doi.org/10.1109/JIOT.2024.3392302.
6. Yuyang Zhang*, **Xu Weng***, K.V. Ling. UarLogger: Logging Measurements from UWB and AR Sensors on iOS Devices. In *the 23rd ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)*. IEEE, 2024. https://doi.org/10.1109/IPSN61024.2024.00047. (*Equal Contributions, Best Poster Runner-up)
7. **Xu Weng**, K.V. Ling. Localization with noisy Android raw GNSS measurements. In *2023 IEEE Asia Pacific Conference on Wireless and Mobile (APWiMob)*. IEEE, 2023. https://doi.org/10.1109/APWiMob59963.2023.10365597. (Best Paper Award)
8. **Xu Weng**, Yanhong Kou. Modified Code Tracking Loop Aided by Short Multipath Insensitive Code Loop Discriminator. In *Proceedings of the 2017 International Technical Meeting of The Institute of Navigation*. 2017. https://doi.org/10.33012/2017.14935.

Student Mentorship

- **Boyang Hao**, Large Language Models for Mobile Sensing — Now
- **Yanran Hu**, Vision-Language Models for Outdoor Spatial Awareness — Now
- **Zongda Li**, Dynamic Mode Decomposition for Smartphone Localization — Now
- **Bowen Liu**, Edge-based Mobile Localization, now at Meituan — 2024-2025
- **Yixuan Xiong**, FGO for Smartphone Localization, now at Hanwha Offshore — 2024-2025
- **Yuyang Zhang**, Multi-user AR for iOS Devices, now at Huawei — 2022-2024
- **Yuhui Jin**, Outdoor AR for Android Phones, now at SPTL — 2022-2024
- **Minyi Lin**, Moving Horizon Location Estimation, now at OPPO — 2021-2023

Teaching Experience

- **Computer Communications**, IE3017 — Fall 2023, Spring 2024
- **Communication Principles**, EE3012 — Spring 2023, Fall 2023
- **Signals and Systems**, IE2110 — Spring 2024
- **Introduction to EEE Laboratories**, EE1071 — Spring 2024

Open Source Codes

AndroidGnss: https://github.com/AILocAR/androidGnss

PrNet: https://github.com/AILocAR/PrNet

E2E-PrNet: https://github.com/AILocAR/E2EPrNet

UarLogger: https://github.com/Huoyanlifusu/UarLogger

NeRC: https://github.com/AILocAR/NeRC