# WENQING YAN

**12th May 1994, China**

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I am always fascinated by research on mobile embedded system networked together wirelessly and consider myself being a creative scholar. I am passionate about exploring the interdisciplinary research area among Wireless Communication, Embedded System, Machine Learning (ML) and Security.

## EDUCATION

**Uppsala University** — Sep. 2018 – Estimated Dec. 2023
Ph.D. candidate specialized in — Uppsala, Sweden
Wireless Communication and Networked Embedded Systems
**Awards:**
**MobiSys'23 Best Demo, SenSys'21 Best Poster,**
**SenSys'20 Best Poster, Best Ph.D. Forum Presentation**
**N2Women Young Researcher Fellowship**

**NUS (National University of Singapore) - Exchange** — Apr. 2023
Exchange researcher to WEISER group led by Prof. Varshney — Singapore

**KTH (Kungliga Tekniska högskolan)** — Aug. 2016 – Sep. 2018
M.Sc. of Network Services and System (GPA 4.83/5.0) — Stockholm, Sweden
**Awards: KTH One-Year Scholarship based on the excellent academic performance**

**UCLA (University of California, Los Angeles) – Exchange** — Jul. 2015 – Sep. 2015
Exchange student in Communication Department (GPA 5.0/5.0) — Los Angeles, USA

**Beijing Jiaotong University** — Aug. 2012 – Jun. 2016
Bachelor of Engineering, Communication Systems Engineering — Beijing, China
**Awards: 3 Years University Scholarship**

## PUBLICATION

### *Papers:*

[1] ORF: On-board Radiometric Fingerprinting Fully Integrated on an Embedded System [open source] — In submission ICC
[2] Decomposing Radiometric Fingerprints in Backscatter Systems — In submission TMC
[3] TunnelLiFi: Bringing LiFi to Commodity Internet of Things Devices — HotMobile'23
[4] Judo: Addressing the Energy Asymmetry of Wireless Embedded Systems through Tunnel Diode based Wireless Transmitters [open source] — MobiSys'22
[5] RRF: A Robust Radiometric Fingerprint Authentication System that Embraces Wireless Channel Diversity — WiSec'22
[6] PHY-IDS: A Physical-layer Anomaly Detection System for Body Area Networks — WearSys@MobiSys'21
[7] Privacy-preserving Continuous Tumour Relapse Monitoring Using In-body Radio Signals — SafeThings@S&P'21
[8] Predicting Round-Trip Time Distributions in IoT Systems using Histogram Estimators — NOMS´20
[9] Machine-Learning Based Active Measurement Proxy for IoT Systems — IM´19

### *Posters:*

[10] Enabling L3: low cost, low complexity and low power radio frequency sensing using tunnel diodes — MobiCom'23
[11] Identifying Bluetooth Low Energy Devices — SenSys´21 – Best Poster
[12] Sensitivity of radiometric fingerprint against wireless channel: poster abstract — SenSys´20 – Best Poster
[13] Towards robust and low-complexity radiometric fingerprint: PhD forum abstract — SenSys´20 – Best Presentation
[14] Towards secure backscatter-based in-body sensor networks: poster abstract — SenSys´20

### *Demos:*

[15] An Educational Platform to Learn Radio Frequency Wireless Communication [open source] — MobiSys'23 – Best Demo

***Conference Notes:***

MobiSys: International Conference on Mobile Systems, Applications and Services - ACM SIGMOBILE A* Flagship Conference

SenSys: ACM Conference on Embedded Networked Sensor Systems - ACM SIGMOBILE A* Flagship Conference

MobiCom: International Conference on Mobile Computing and Networking - ACM SIGMOBILE A* Flagship Conference

WiSec: ACM Conference on Security and Privacy in Wireless and Mobile Networks - ACM SIGSAC leading Conference

TMC: IEEE Transactions on Mobile Computing - Impact factor 7.9

ICC: IEEE International Conference on Communication - IEEE Communications Society's Flagship conferences

HotMobile: International Workshop on Mobile Computing Systems and Applications

# PROJECTS

**Judo: Addressing the Energy Asymmetry of Wireless Embedded Systems** [3][4]

*Low-power transmitter architecture design using tunnel diode*

Designed a novel transmitter architecture that leverages the unique properties of tunnel diodes to minimize power consumption while maintaining high communication performance.

**Fingerprint Backscatter Systems** [2]

*Radiometric Fingerprinting System Design for Backscatter Systems*

Backscatter is a low-power communication technology. This project aims to design a RF fingerprinting system tailed for backscatter communication technology, which can identify both the emitter and tag.

**RRF: Robust and Low-complexity Radiometric Fingerprinting System** [5]

*Physical-layer Devices Authentication and Identification*

Radio Frequency (RF) fingerprinting leverages the imperfection in transmitter electronics to identify the device. This project aimed to improve the RF fingerprinting robustness towards dynamic and complex channel conditions.

**ORF: On-board Low-complexity Radiometric Fingerprinting System** [1]

*Radiometric Fingerprinting Implementation on Constrained Devices*

Deployed the fingerprinting system on a single commercial off-the-shelf SoC.

**Machine Learning for Enabling Active Measurements in IoT Environment** [8,9]

*Network measurement and management – Master Thesis in Ericsson Research*

Aimed at developing a prediction model for achieving network analytics and management in IoT environments.

# COMPUTER - SKILLS

- Programming Language: Python, Matlab, C/C++
- Machine Learning Library: Sciki-learn, Keras, MxNet, TensorFlow
- Embedded Operating System: Contiki-ng, TinyOS,
- RF Testing Instruments: Software-defined radio, Spectrum Analyzer, Vector Network analyzer, Signal generator
- Radio Technology: IEEE 802.15.4, BLE
- Other: GNU Radio, Wireshark, Linux server, LaTeX, Photoshop, Procreate

# PROFESSIONAL REFERENCES


**Thiemo Voigt**
Job Title: Professor
RISE, Uppsala University, Sweden
e-mail: thiemo.voigt@ri.se

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Uppsala University, Sweden
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