

Farooq Ayoub Dar, Ph.D.

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Languages: English (Fluent), Kashmiri (Native), Urdu (Fluent), Hindi (Fluent)

Professional Summary

Computer Science Researcher and PhD graduate specializing in IoT, pervasive sensing, and edge computing. Demonstrated expertise in building decentralized edge infrastructures, thermal sensing modalities, and embedded ML pipelines for environmental sustainability. Strong background in Python and C/C++ with proven impact publishing in top-tier IEEE/ACM venues.

Technical Skills

- **Programming Languages:** Python, C, C++, Java, Shell Scripting, HTML/CSS
- **ML/DL Frameworks:** TensorFlow, Keras, PyTorch, FEDn, Scikit-learn, OpenCV
- **Data Engineering & Tools:** Pandas, NumPy, Docker, AWS (S3), MinIO, Git
- **Databases:** PostgreSQL, SQL, MongoDB, Oracle
- **Operating Systems & Embedded:** Linux (Ubuntu/Fedora), Raspberry Pi OS, macOS, Windows
- **Data Visualization:** Matplotlib, Seaborn, Plotly, GNUPlot

Education

University of Tartu

Tartu, Estonia

Ph.D. in Computer Science

Sep 2020 – May 2026

Thesis: Autonomous Pervasive Sensing for Environmental Sustainability (GPA: 3.80/5)

Advisor: Associate Prof. Huber Flores

Key PhD Research Projects:

- **MIDAS Project:** Characterized materials and everyday physical interactions by establishing thermal dissipation as an innovative, high-accuracy sensing modality.
- **LIZARD Project:** Architected an autonomous, light/thermal pervasive sensing platform for real-time monitoring and detection of environmental plastic litter.
- **Micro Cloud Project:** Designed and deployed low-cost micro-clouds to upscale fog and edge computing in maritime and extreme aquatic environments.

Central University of Jammu

Jammu and Kashmir, India

M.Tech. in Computer Science and Technology

Jul 2016 – Aug 2018

Dissertation: Monitoring, Classification, and Diagnosis of Disease Using Neural Networks (GPA: 8.29/10)

Description: Evaluated Artificial Neural Networks (ANNs) and machine learning classifiers on the PIMA Indian Diabetes (PID) dataset to maximize diagnostic accuracy and automate medical disease diagnosis.

Islamic University of Science and Technology

Jammu and Kashmir, India

B.Tech. in Computer Science and Engineering

Jul 2011 – Aug 2015

GPA: 7.98/10

Projects & Descriptions:

- **Augmented Reality Based Classrooms:** Developed interactive augmented reality modules to enrich classroom sessions and improve visual information delivery for educators and students.

- **PRIMOS (Power Reducing Intelligent Mode Operating Systems):** Engineered an intelligent power management operating system using Linux shell scripting, leveraging runlevels and advanced shell commands for optimized system resource control.

Research & Professional Experience

Junior Researcher

Feb 2020 – Aug 2024

Distributed and Pervasive Systems Lab, University of Tartu

Tartu, Estonia

- Engineered edge computing frameworks (GEESE platform) leveraging terrestrial and aerial Unmanned Aerial Vehicles (UAVs) to enable low-latency processing in pervasive sensing deployments.
- Developed TOAD, designing a novel thermal offloading method and performance evaluation pipeline for 3D-printed IoT rapid prototype designs.
- Built and presented PRINCE, a live working demo for non-invasive device energy estimation using a single thermal image at IEEE/ACM IoTDI.
- Architected sustainable computing infrastructure by repurposing legacy hardware and e-waste smartphones as tiny, low-power micro-data centers.
- Developed full-stack IoT and autonomous ground vehicle (AGV) systems tailored for real-time environmental monitoring and pervasive data science.

Teaching Assistant – Distributed Systems

Spring 2021

Chair of Distributed Systems, University of Tartu

Tartu, Estonia

- Conducted lab sessions for master's level students in *LTAT.06.007: Distributed Systems*, guiding students through fault tolerance, consensus protocols, and edge-to-cloud architectures.

Guest Lecturer

Jan 2019 – Jun 2019

Government Polytechnic College

Anantnag, Jammu & Kashmir, India

- Taught core diploma courses including *Unix-Based Operating Systems* and *Computer Networking*, and directed practical sessions for *C Programming Lab*.

Programmer and Tutor

Aug 2018 – Oct 2018

Think and Win Technologies

Kulgam, Jammu & Kashmir, India

- Managed software development projects for Think Digital Solutions while delivering instructional training in C programming and web development.
- **Workshop Organized:** “Computer Technologies and Programming Skills” in collaboration with Govt. Polytechnic College, Kulgam (Sept 10, 2018).
- **Workshop Organized:** “How to Make Money Online” community tech seminar (July 21–22, 2018).

Publications

- **TOAD: Profiling and Evaluating 3D printed IoT Rapid Prototype Designs**
Farooq Dar, et al. *ACM Transactions on Internet of Things (TIOT)*, 2025.
- **Supporting Sustainable Computing by Repurposing E-waste Smartphones as Tiny Data Centres**
Perseverance Ngoy, Farooq Dar, Mohan Liyanage, et al. *IEEE Pervasive Computing*, 2025.
- **Demo Abstract: PRINCE: Device Energy Estimation with a Single Photo**
Farooq Dar, et al. *IEEE/ACM 9th International Conference on Internet-of-Things Design and Implementation (IoTDI)*, IEEE, 2024.
- **LIZARD: Pervasive Sensing for Autonomous Plastic Litter Monitoring**

Farooq Dar, et al. *IEEE/ACM 9th International Conference on Internet-of-Things Design and Implementation (IoTDI)*, IEEE, 2024.

- **Demo Abstract: A Smart Ring Monitoring Your Health using Hand-grip Strength**
Zhigang Yin, Mohan Liyanage, Abdul-Rasheed Ottun, Farooq Dar, Mayowa Olapade, Huber Flores. *ACM Conference on Embedded Networked Sensor Systems (SenSys)*, 2023.
- **Low-Cost Sensing for Environmental Sustainability**
Agustin Zuniga, Olapade Mayowa, Naser Hossein Motlagh, Mohan Liyanage, Zhigang Yin, Farooq Dar, Ngoc Thi Nguyen, Adeyinka Akintola, Marko Radeta, Sasu Tarkoma, Huber Flores, Petteri Nurmi. *IEEE Pervasive Computing*, 2023.
- **Upscaling Fog Computing in Oceans for Underwater Pervasive Data Science using Low-Cost Micro-Clouds**
Farooq Dar, Mohan Liyanage, Marko Radeta, Zhigang Yin, Agustin Zuniga, Sokol Kosta, Sasu Tarkoma, Petteri Nurmi, Huber Flores. *ACM Transactions on Internet of Things (TIOT)*, 2023.
- **The MIDAS Touch: Thermal Dissipation Resulting from Everyday Interactions as a Sensing Modality**
Farooq Dar, Hilary Emenike, Zhigang Yin, Mohan Liyanage, Rajesh Sharma, Agustin Zuniga, Mohammad Ashraful Hoque, Marko Radeta, Petteri Nurmi, Huber Flores. *Elsevier: Pervasive and Mobile Computing (PMC)*, 2022.
- **Toward City-Scale Litter Monitoring Using Autonomous Ground Vehicles**
Zhigang Yin, Mayowa Olapade, Mohan Liyanage, Farooq Dar, Agustin Zuniga, Naser Hossein Motlagh, Xiang Su, Sasu Tarkoma, Pan Hui, Petteri Nurmi, Huber Flores. *IEEE Pervasive Computing*, 2022.
- **Characterizing Everyday Objects Using Human Touch: Thermal Dissipation as a Sensing Modality**
Hilary Emenike, Farooq Dar, Mohan Liyanage, Rajesh Sharma, Agustin Zuniga, Mohammad A. Hoque, Marko Radeta, Petteri Nurmi, Huber Flores. *IEEE International Conference on Pervasive Computing and Communications (PerCom)*, 2021.
- **GEESE: Edge Computing Enabled by UAVs**
Mohan Liyanage, Farooq Dar, Rajesh Sharma, Huber Flores. *Elsevier: Pervasive and Mobile Computing (PMC)*, 2021.
- **Medical Diagnosis of Diabetes using Machine Learning Classifiers**
Farooq Ayoub Dar, Yashwant Singh. *Journal of Emerging Technologies and Innovative Research (JETIR)*, ISSN: 2349-5162, 2019.
- **Comparative Analysis of Medical Diagnostic Techniques Using ANN**
Farooq Ayoub Dar, Yashwant Singh. *Research Cell: An International Journal of Engineering Science*, 2018.

Certifications

- **Advanced Trustworthy AI** – MinnaLearn (Nov 2023)
- **Trustworthy AI** – MinnaLearn (Nov 2023)
- **Improving Deep Neural Networks: Tuning, Regularization & Optimization** – Coursera (Aug 2023)
- **Neural Networks and Deep Learning** – Coursera (Mar 2023)
- **Python for Data Analysis: Pandas & NumPy** – Coursera (Nov 2021)
- **Certificate Course in Java Programming Language** – Oracle's Workforce Development Program, NIIT Jammu, J&K, India (Nov 2013 – Mar 2014)
- **Certificate Course in Advanced Java Programming for Web Development** – Oracle's Workforce Development Program, NIIT Jammu, J&K, India

Academic Service & Outreach

- **Paper Presentation:** ACM SenSys 2023, Istanbul, Turkey (2023) – Presented “*Upscaling Fog Computing in Oceans for Underwater Pervasive Data Science using Low-Cost Micro-Clouds*” (Selected from ACM TIOT Journal).
- **Demo Presentation:** ACM SenSys 2023, Istanbul, Turkey (2023) – Presented “*Demo Abstract: A Smart Ring Monitoring Your Health using Hand-grip Strength*”.
- **MOOC Content Developer:** Co-developed practical content for two international MOOCs on Trustworthy AI in collaboration with MinnaLearn and University of Tartu (2023).
- **Student Volunteer:** 21st ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Helsinki, Finland (2023).
- **Student Volunteer:** 1st International Conference on Recent Innovation in Computing (ICRIC 2018), Central University of Jammu, Jammu & Kashmir, India (March 05–06, 2018).