

SANNARA EK

PhD Candidate specializing in Federated Learning

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🌐 <https://scholar.google.com/citations?user=P1F8sQgAAAAJ&hl=en>



EXPERIENCES

Research Intern

Laboratoire d'Informatique de Grenoble - GETALP

📅 Feb 2020 – Jul 2020 📍 Grenoble, France

- Developed federated learning (On-device distributed learning) algorithms and techniques in the context of Human Activity Recognition on smartphones.
- Translated research papers into operational code and leveraged state-of-the-art methodologies to customize and develop ML models.

Research Intern

Laboratoire d'Informatique de Grenoble - GETALP

📅 Jan 2019 – Jun 2019 📍 Grenoble, France

- Researched visual attention models with eye trackers for multi-disabled individuals.
- Worked and developed on the cognitive measurements of users through analyzing the AOI (Area of Interest) on human-computer - interactions with eye trackers

Software Engineer

Udaya Technology Co., Ltd

📅 Sep 2017 – Apr 2018 📍 Phnom Penh, Cambodia

- Developed and designed management-support mobile applications with a REST architecture in an Agile environment.

Network Intern

Huawei Technology Co., Ltd

📅 May 2017 – Jul 2017 📍 Phnom Penh, Cambodia

- Configured Huawei core routers and switches for a network migration from Cisco-based devices.

LANGUAGES

English [IELTS 8.0], Khmer
Japanese [B1], French [B1]

Fluent
Basic

EDUCATION

Doctor of Philosophy in Computer Science |
Federated Learning Within Pervasive Heterogeneous Environments

Université Grenoble Alpes - LIG

📅 October 2021 – Present

Master of Science in Informatics at Grenoble |
Graphics, Vision and Robotics

Université Grenoble Alpes - Grenoble INP

📅 September 2018 – September 2020

Cisco Certified Network Associate Training Course

Sunrise Institute of Technology

📅 May 2015 – June 2016

Bachelor of Science (Hons) in Software Engineering with Multimedia

Limkokwing University of Creative Technology

📅 June 2013 – May 2017

HONORS & AWARDS

- Tan Sri Dato's Sri Paduka Limkokwing Award for Creativity and Innovation
- Valedictorian of Limkokwing University of Creative Technology Graduation Ceremony for the years 2015-2017

TECHNICAL SKILLS

Java (Android), Python (Tensorflow) Adept
Swift, React, NodeJs, SQL Advanced
Network & OS Essentials Knowledgeable

EXPERTISE DOMAINS

Federated learning Self-supervised learning
On-device learning Pervasive computing
Computer vision Human activity recognition

ACTIVITIES

Technical Paper Reviewer

Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies

📅 21 Mar 2023 📍 Online

Visiting Student Researcher

University of Milan - EveryWare Lab

📅 10 Oct 2022 – 13 Nov 2022 📍 Milan, Italy

Technical Paper Reviewer

PerCom WiP 2022

📅 21 Mar 2022 – 25 Mar 2022 📍 Pisa, Italy

Oral Presenter

CollaboTICS 2021

📅 15 Dec 2021 – 16 Dec 2021 📍 Grenoble, France

Visiting Student Researcher

Université de Lorraine - Institut Jean Lamour

📅 05 Dec 2021 – 09 Dec 2021 📍 Nancy, France

PUBLICATIONS

- Ek, Sannara, Riccardo Presotto, Gabriele Civitarese, François Portet, Philippe Lalanda, and Claudio Bettini (2023). "Comparing Self-Supervised Learning Techniques for Wearable Human Activity Recognition". In: *Available at SSRN 4529608*.
- Presotto, Riccardo, Sannara, Ek, Gabriele Civitarese, François Portet, Philippe Lalanda, and Claudio Bettini (2023). "Combining Public Human Activity Recognition Datasets to Mitigate Labeled Data Scarcity". In: *2023 IEEE International Conference on Smart Computing (SMARTCOMP)*, pp. 33–40.
- Ek, Sannara, Philippe Lalanda, and François Portet (2022). "Federated Learning Within Pervasive Heterogeneous Environments". In: *2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*. IEEE, pp. 134–135.
- Ek, Sannara, François Portet, and Philippe Lalanda (2022). "Lightweight Transformers for Human Activity Recognition on Mobile Devices". In: *arXiv preprint arXiv:2209.11750*.
- Ek, Sannara, François Portet, Philippe Lalanda, and German Vega (2022). "Evaluation and comparison of federated learning algorithms for Human Activity Recognition on smartphones". In: *Pervasive and Mobile Computing* 87, p. 101714.
- Ek, Sannara, Romain Rombourg, François Portet, and Philippe Lalanda (2022). "Federated Self-Supervised Learning in Heterogeneous Settings: Limits of a Baseline Approach on HAR". in: *2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops)*. IEEE, pp. 557–562.
- Ek, Sannara, François Portet, Philippe Lalanda, and German Eduardo Vega Baez (2021). "Evaluating Federated Learning for human activity recognition". In: *Workshop AI for Internet of Things, in conjunction with IJCAI-PRICAI 2020*.
- Ek, Sannara, François Portet, Philippe Lalanda, and German Vega (2021). "A federated learning aggregation algorithm for pervasive computing: Evaluation and comparison". In: *2021 IEEE International Conference on Pervasive Computing and Communications (PerCom)*. IEEE, pp. 1–10.
- Ek, Sannara, François Portet, Philippe Lalanda, and German Vega (2020). "Evaluation of federated learning aggregation algorithms: application to human activity recognition". In: *Adjunct Proceedings of the 2020 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2020 ACM International Symposium on Wearable Computers*, pp. 638–643.
- Schwab, Didier, Sébastien Riou, Amela Fejza, Loic Vial, Johana Marku, Wafaa Husseini, Sannara, Ek, Miles Bardon, and Yann Robert (2020). *Le projet GazePlay: des jeux ouverts, gratuits et une communauté pour les personnes en situation de polyhandicap*.

REFERENCES

👤 Prof. Philippe Lalanda [Phd Supervisor]

Professor @ Université Grenoble Alpes

philippe.lalanda@univ-grenoble-alpes.fr

👤 Prof. François Portet [Phd Supervisor]

Professor @ Université Grenoble Alpes

francois.portet@univ-grenoble-alpes.fr

👤 Prof. Didier Schwab [Internship Supervisor]

Professor @ Université Grenoble Alpes

schwabd@univ-grenoble-alpes.fr

SUPERVISONS

👤 Akram Chaouache [5 Month Internship]

M1 Student @ Polytech Grenoble

Benchmarking self-supervised learning techniques for human activity recognition on mobile devices