Curriculum Vitae

1) Personal information

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2) Professional history

Position and Status: Contractual researcher (SRP)
Institution: Inria Saclay
Professional address: 1 Rue Honore d'Estienne d'Orves, 91120 Palaiseau, France

Previous professional experiences

Start	End	Institution	Position and status
May 2025	to date	Inria Saclay	Contractual Researcher (SRP)
Jan. 2024	May 2025	TU Berlin	PostDoc, ERC Malfoy grant, Machine Learning and Security team
May 2023	Dec. 2023	Inria Saclay	Research engineer, TRiBE team (Networking and telecommunications)
Nov. 2019	Apr. 2023	Ecole Polytechnique (IPP) and Inria Saclay	PhD student, CORDI-S grant, TRiBE team
Mar. 2019	Sep. 2019	CNRS hosted at I3S	Research intern (Systems and security team)

3) Supervision of students and early-stage researchers

- **PhD Students (1)**

  - **Lucas Da Silva Felix** (May 2024 - to date).
    Institution: cotutelle Inria Saclay and UFMG, Brazil; *Supervision*: 30% (with A. C. Viana, J. Almeida);
    Topic: Assessing Shadows in Mobility: Beyond Spatiotemporal Patterns
    Lucas Felix's thesis focuses on understanding vulnerabilities in mobility datasets, challenging the reliance on the spatio-temporal visitation patterns as the sole aspect of user susceptibility to re-identification. By exploring alternative perspectives on human vulnerability, his research aims to uncover susceptibilities that advanced re-identification attacks may exploit, particularly those targeting behavioral patterns.

- **Master Students (6)**

  - **Cliton Nyobe** (Feb-Aug 2021)
    Institution: Inria Saclay; *Master Thesis*: `hal-04581045`; *Supervision*: 80% (with A. C. Viana, A. Tchana)
    Topic: Deployment of a hardware architecture for capturing and analyzing cellular network signaling
    Clinton completed his engineering internship with our research team at Inria Saclay (TRiBE group). His work was primarily experimental, focusing on deploying a functional 4G network architecture to collect and analyze signaling traces and establish device signatures. Throughout his internship, I provided Cliton both technical and bibliographic guidance, alongside my thesis supervisors. His work received an excellent grade.

  - **Gaelle Yonga** (Sep 2023-Apr 2024).
    Institution: Inria Saclay; *Supervision*: 65% (jointly with Aline C. Viana)
    Topic: Spatio-temporal data usability and reliability assessment process
    Gaelle's work focused on analyzing spatiotemporal datasets for integrity and usability, addressing biases in their collection and anonymization. During her internship supervision, we examined various public datasets, gaining insights that advanced knowledge on unbiased data use. This research continues to build on those findings.

  - **Maximilian Erkel** (Apr-Jul 2024).
    Institution: TU Berlin; *Supervision*: 10% (jointly with Stefan Czybik)
    Topic: Tracking Train Journeys: On Detecting Track Segments Using Permissionless Smartphone Sensors
    I took over supervising Maximilian's thesis, which was already underway upon my arrival at TU Berlin, due to my interest and expertise in the topic. His work, part of a larger project, investigates privacy vulnerabilities in permissionless sensors used to track movements via public transportation data. My role included advising on design choices and bibliographic work alongside the main supervisor.

  - **Ivanna Bura** (Apr-Oct 2024).
    Institution: TU Berlin; *Supervision*: 40% (jointly with Stefan Czybik)
    Topic: Tracking Train Journeys: On Detecting Train Stops Using Permissionless Smartphone Sensors

Within the same broader scope as Maximilian's thesis, Ivanna's research focuses on leveraging smartphone sensor recordings for robust and accurate detection of train stops in mobile user movements. My supervision involved providing close technical guidance on designing effective detection techniques, establishing a rigorous evaluation setup for comparison, and interpreting the results.

– **Elias Tranchant** (Sep 2024 -Feb 2025).
Institution: TU Berlin; *Supervision*: 60% (jointly with Thorsten Eisenhofer)
Topic: Evaluating Privacy in Mobility Data Generation Models via Data Leakage Attacks
Elias Tranchant's master thesis, under my close supervision, examines privacy risks in Synthetic Data Generation (SDG) models for mobility datasets. While these models, such as GANs and RNNs, generate synthetic individual trajectories, they remain vulnerable to data leakage. His work involves evaluating sequential SDG models, identifying weaknesses leading to privacy breaches, and proposing insights for improvements.

– **Hristo Boyadzhiev** (Nov 2024 -).
Institution: TU Berlin; *Supervision*: 100%
Topic: Human Trajectories Reconstruction Attacks from Generative Models Outputs
Hristo works as a student staff member in the team, contributing 2 days per week under my close supervision. This includes analyzing the transformations applied by SDG models to raw trajectories, identifying potential vulnerabilities that could allow the reconstruction of the original data, and exploring possible countermeasures.

- **Bachelor Students (1)**

  – **Carlos Fandino, Bachelor Student** (Sep 2024-Mar 2025).
  Institution: TU Berlin; *Supervision*: 100%
  Topic: Anonymising motion sensor data: Defenses Against Motion Sensor-Based Mobile Device Fingerprinting
  Carlos's thesis focuses on improving defenses against motion sensor-based mobile device fingerprinting, addressing associated privacy risks. I closely supervise his work, including producing a consistent benchmark for research with existing attacks and countermeasures and enhancing their practicality on mobile devices.

4) Responsibilities

- **Scientific events co-organization and chairing**

  – Data Challenge co-organizer of **NetMob 2025**.
  – TPC Co-Chair, Web-Chair, Publication Chair of **NetMob 2025**, a leading conference on mobile data analysis, to be held in Paris, France in 2025.
  – **Hackathon Chair** on the FraudZen simulator, *Nov 2024, UY1 Cameroon*. More details: §**5)**
  – **Computer Science Workshop**, *Dec 2022, ENSPY Cameroon*: one-day workshop event & "woman in CS" session.
  – Session chair of *Machine learning in and of Networks*, *Dec 2022*, ACM CoNext'22 Student workshop, Rome, Italy
  – **Feedback days**, *Dec 2020, ENSPY Cameroon*: 2-days workshop event with a scientific problem solving session.

- **Program committee member (9)**
  As a Program Committee member, I have contributed to the evaluation and selection of high-quality research papers for 9 national/ international conferences and workshops. My role involved reviewing 2 to 7 papers within a 2-5 week period and engaging in final discussions with fellow committee members. These are:

  – **Conferences (8)**: ICNS'23, ICNS'24, WiMob'24 (B-ranked), ACSAC'24 (A-ranked), PAM' 25 (B-ranked), Algotel&Cores' 25 (national french conference), TMA' 25, WiMob' 25
  – **Shadow PC (1)**: Algotel&Cores'21 (national french conference); **Workshops (1)**: EuroDW'24

- **Reviewer of international journals (5)**
  IEEE/ACM Transactions on Mobile Computing (Q1), IEEE Open Journal of the Communications Society (Q1), EPJ Data Science (Q1), Annals of Telecommunications (Q2), IEEE Transactions on Network and Service Management (Q1) (sub-reviewer, main reviewer: Alain Tchana)

- **Scientific Popularization Mission**, *Inria Saclay* (2020-2021): Completed **32 working days** of public outreach and research dissemination activities **over a year**. For details, refer to **(in Mission)** activities in §**8)**

5) Management

Research Project Member:

- **MLNS2 Inria associate team** (2019-2023) **WP Leader**: *Combining Machine Learning, Systems and Security for addressing attacks at the infrastructure and ecosystem levels* (webpage). *Partners:* ENSPY (Cameroon), Univ. Rennes 1, ENS-Lyon, Inria (TRiBE and WIDE-IRISA). *Role*: Website designer, Main contributor of Goal 1, Animation of research activities (1 workshop co-organized in Cameroon), Students supervision (Gaelle Yonga, Cliton Nyobe).

- **STIC-AmSud LINT Inria associate team** (2023- 2025): *Leveraging federated mobility learning for tactile Internet services*. *Role:* Active collaboration with international partners, Short visits and Talks (1 week UFRJ Brazil 2023, 1 week Univ. Buenos Aires Argentina 2025). *Partners and Collaborators:* Mariano Beiro (Univ. of Buenos Aires, Argentina); Jussara Almeida (UFMG), UFRJ, UFG (Brazil); Leo Ferres (Univ. of Desarrollo, Chile), Nadjib Achir (Univ. Sorbonne Paris Nord, France), Aline C. Viana (Inria TRiBE, France).

Research Project Lead: *Topic:* Leveraging AI for Detecting SIMBox Fraud in Mobile Networks: A Collaborative Initiative with Cameroon; *Duration:* 4 weeks (November 2024); *Funding*: Berlin University Alliance (BUA)
Description: Successfully secured funding from the Berlin University Alliance (BUA) to lead a four-week research collaboration with University of Yaounde 1 (UY1) in Cameroon. The project focuses on developing AI-based techniques to detect SIMBox fraud in mobile networks, addressing a significant challenge in telecom security. The initiative also fosters international research cooperation and knowledge exchange between Berlin and Cameroon. This led to the organization of the FraudZen Hackathon, with ongoing projects related to fraud detection and network security.

6) Mobility

Geographical mobility:

- **Research sojourn:** one-month-long at CNR Pisa (Italy) for collaborative work with Luca Pappalardo in 2022-2023
- **Regular visits:** Bi-weekly visits to Telecom Paris (Faraday Cage) over a six-month period in 2022-2023, for hands-on experimentation and collaborative research within the RMS team under the supervision of Philippe Martins.
- **Regular visits:** one week per trimester at TRiBE (Inria) in 2024 for collaboration, discussion, and advising.
- From *Cameroon* to *France* (I3S then Inria) for the doctoral studies in 2019; then *Germany* for PostDoc in 2024

Thematical mobility: My research career has been marked by significant thematic mobility, spanning three distinct domains: (i) Before starting my PhD, I completed a 6-month research internship at I3S in Nice within an **Operating Systems** team, where I worked on optimizing virtualization techniques. (ii) My PhD research then shifted towards **Networking**, focusing on mobile networks, data analytics, and security within the TRiBE team at Inria. (iii) For my PostDoc, I moved to a **Security and Machine Learning** team at TU Berlin, further expanding my expertise in these domains.

7) Teaching

I had the opportunity to interact with students from several institutions through various types of classes, including Massive Online Open Courses (**MOOC**), Practical Courses (**PC**), Seminar Courses (**SC**), and Lecture Tutorials (**TD**), totalizing around **108 hours**, as overviewed in the table below:

Course	Level	Period	Dissemination	Workload
(**SC**) Mobile Privacy and Security	L3	Apr-Jul 2025	TU Berlin, De	≈12h
(**TD**) Lecture: Adversarial Machine Learning	M2	Oct 2024-Feb 2025	TU Berlin, De	≈24h
(**SC**) Unusual Side Channels and Privacy Leaks	L3	Oct 2024-Feb 2025	TU Berlin, De	≈12h
(**SC**) Mobile Privacy and Security	L3	Apr-Jul 2024	TU Berlin, De	≈12h
(**TD**) Networking: switching and routing	L2	Sep-Dec 2021	Paris-Saclay Univ., Fr	24h
(**MOOC**) Fundamentals of Network and Information Systems ∼ **18323** registrations in 2025	Main Audience: CAPES	2021	Fun-Mooc & YouTube	≈24h
(**PC**) Distributed Systems and Virtualization	M2	Oct-Dec 2019	ENSPY, Cameroon	≈12h

8) Dissemination of scientific knowledge

Vulgarization Productions for the General Public

- *Article in Submission*: "La Théorie des Jeux pour Combattre les Fraudes Téléphoniques" (2025). Interstices.
- **(in Mission)** *Video Production*, Explained Wireless Communications, Paris-Saclay Science Festival Saclay (2021)

Talks and Panels for the General Public

- Invited talk at the prestigious **ZTF Awards 2024**, Cameroon, with an audience of **4,000+ high school and university students** (Dec 2024). **Topic:** *"Mobile Human Behavior: Accessibility, Leveraging, and Addressing Privacy Risks."*
- *Women in CS Session Panelist*, Computer Science Workshop, *Ecole Polytechnique, Yaounde, Cameroon* (Dec 2022): Discussed research careers, work-life balance, and challenges for female researchers with undergraduates.
- **(in Mission)** *Talk* at the "Semaine des Mathématiques", *Academie de Créteil* (Mar 2021): Presented on the job of a researcher and the Inria Institute.
- **(in Mission)** *Stand Animation*, Science Festival, Institut Polytechnique Paris (IPP) (Oct 2021): Explained concepts of algorithms and encryption to the general public in an offline style.

Vulgarization Workshops Co-organization

- *Workshop Organizer*, Math and Computer Science Club, Lycée d'Elig-Essono, Cameroon (Nov 2024): Organized a 3-hour workshop under Animath's international actions in collaboration with PromoMaths, featuring talks and discussions on "*The Profession of a Researcher*" and "*Understanding Traffic and Human Mobility Through Markov Chains.*"
- *Workshop Leader*, "Mädchen Zukunftstag", TU Berlin, Germany (Apr 2024): Led a 3-hour workshop for 7th to 9th grade girls on "What is Computer Science" unplugged and plugged with Python programming sessions.
- **(In Mission)** *Workshop Leader*, "*Rendez-vous des Jeunes Filles Mathématiciennes et Informaticiennes*" (RJMI), Inria Saclay (2021 and 2022 editions): Led a 2-day program for 25 selected young girls interested in Mathematics and CS.

9) List of Publications

Authorship follows a **contribution-based** approach: the **leading intern, PhD student, or Postdoc** is first author, with other collaborators ordered by contribution or alphabetically when similar.

Top-tier journals and conferences are highlighted in **bold**, following the **CORE rankings** (CORE Portal) and **JCR impact factors**. All my publications are available on my personal webpage: List of publications.

1. International journals

- **A. J. Kouam**, A. C. Viana and A. Tchana, "SIMBox Bypass Frauds in Cellular Networks: Strategies, Evolution, Detection, and Future Directions," in **IEEE Communications Surveys & Tutorials**, vol. 23, no. 4, pp. 2295-2323, Fourthquarter 2021, DOI: `10.1109/COMST.2021.3100916`. (Q1, Impact Factor: 34.4)

2. Reviewed international conferences

- **A. J. Kouam**, A. C. Viana, P. Martins, C. Adjih, and A. Tchana. SigN: SIMBox Activity Detection Through Latency Anomalies at the Cellular Edge , 2025. DOI: `10.48550/arXiv.2502.01193` - *(Accepted and to appear in)* **ACM ASIACCS'25** (CORE A).
- Lucas G.S. Felix, **Anne J. Kouam**, Aline C. Viana, Nadjib Achir, Jussara M. Almeida, "The Silent Signature: Behavior-based User Exposure in Mobility Data," (*Accepted and to appear in*) **IEEE MDM '25**. (CORE B)
- **A. J. Kouam**, A. C. Viana, and A. Tchana. 2024. Battle of Wits: To What Extent Can Fraudsters Disguise Their Tracks in International bypass Fraud? In **ACM ASIACCS '24**. DOI: `10.1145/3634737.3657023` (CORE A, acc. rate:19%).
- **A. J. Kouam**, A. Carneiro Viana and A. Tchana, "LSTM-based generation of cellular network traffic," 2023 IEEE WCNC, Glasgow, United Kingdom, 2023, pp. 1-6, DOI: `10.1109/WCNC55385.2023.10119094`. (CORE B)
- D. Mvondo, M. Bacou, K. Nguetchouang, L. Ngale, S. Pouget, **J. Kouam**, R. Lachaize, J. Hwang, T. Wood, D. Hagimont, N. De Palma, B. Batchakui, and A. Tchana. 2021. OFC: an opportunistic caching system for FaaS platforms. In **EuroSys '21**. DOI: `10.1145/3447786.3456239`. (CORE A)

3. Reviewed international workshops

- Gaelle M. Yonga, **Anne J. Kouam**, Aline C. Viana, Auguste V. Noumsi UrbCom - 7th International Workshop on Urban Computing, Co-located with IEEE DCOSS-IoT 2025, Jun 2025, Lucca, Italy

- **A. J. Kouam**, A. C. Viana, and A. Tchana. 2022. Simulating SIMBox frauds for detection investigation. In CoNEXT Student Workshop (CoNEXT-SW '22). DOI: `10.1145/3565477.3569161`.

4. Other international publications (posters, short papers)

- L. Félix, **A. J. Kouam**, A. C. Viana, N. Achir, J. Almeida. Assessing Shadows in Mobility: Beyond Spatiotemporal Patterns. NetMob 2024, World Bank, Oct 2024, Washington (DC), United States. Available: `hal-04680709`.
- **A. J. Kouam**, A. C. Viana, A. Tchana. SIMBox fraud: How well can they mimic your communication behavior?. NetMob, Oct 2023, Madrid, Spain. Available: `hal-04928280`.
- **[Poster] A. J. Kouam**, A. C. Viana, A. Tchana. On the intricacies of per individual cellular network datasets generation. NetSci-X, Feb 2023, Buenos Aires, Argentina. `hal-04928336`.

5. Conférence nationales avec comité de lecture/*Reviewed national conferences*

- Gaelle M. Yonga, **A. J. Kouam**, Aline C. Viana, Auguste Noumsi. Évaluation de l'utilisabilité et de la fiabilité de données spatio-temporelles anonymisées. CORES 2025, Jun 2025, Saint Valery-sur-Somme, France. Available: `hal-05008121v2`.
- **A. J. Kouam**, A. C. Viana, P. Martins, C. Adjih, A. Tchana. Signalisation cellulaire pour la detection des fraudes de contournement. CoRes 2023, May 2023, Cargèse (Corse), France. Available: `hal-04087350v1` - *Best Student Paper*.
- **A. J. Kouam**, A. C. Viana, A. Garivier, A. Tchana. Génération de traces cellulaires réalistes. CORES 2022 - May 2022, Saint-Rémy-Lès-Chevreuse, France. Available: `hal-03658019v1`.

6. Research reports and publications under review

- **A. J. Kouam**, Aline C. Viana, Mariano G. Beiró, Leo Ferres, and Luca Pappalardo. Characterizing user behavior: The interplay between mobility patterns and mobile traffic, 2025. DOI: `10.48550/arXiv.2501.19348`.
- **A. J. Kouam**, Aline C. Viana, and Alain Tchana. Zen: LSTM-based generation of individual spatiotemporal cellular traffic with interactions, 2023. DOI: `10.48550/arXiv.2301.02059`.

7. Public datasets

- Carlos S. Fandino, **Anne J. Kouam**, Konrad Rieck. MSMDF: Motion Sensor Fingerprinting Dataset with 1,200 Annotated Samples from 42 Smartphones Across Diverse Conditions [Data set], 2025. Zenodo. `10.5281/zenodo.15554712`

10) Technological development (software, hardware)

My research has contributed to technological advancements, including cellular network simulation software, publicly available datasets, and proof-of-concept solutions from my papers. Below is a list of these developments.

1. Leading role

- **FraudZen.** As part of the work in DOI:`10.1145/3634737.3657023`, I implemented the FraudZen simulator and created several CDR datasets generated from simulations with various fraud strategies designed to test the performance of current detection techniques in a consistent way. The code consists of approximately 19,000 lines. Developed in: C++.
- **En-WDM.** As part of the work outlined in DOI:`10.48550/arXiv.2301.02059`, I enhanced the WDM mobility model emulator by incorporating human mobility behavior and the simulation of fraudulent mobility patterns. Developed in:Java.
- **SigN.** As part of the work described in DOI:`10.48550/arXiv.2502.01193`, I collected signaling traces from phones and SIMBox appliances from several manufacturers. Additionally, the provided code demonstrates a proof of concept for using these data to extract a signature distinguishing SIMBox appliances. Url= `https://gitlab.inria.fr/simbox-fraud-mitigation/sign`.

2. Supervision role

- **In-Faraday-Cage Experimentation** – Supervision of Clinton Nyobe (Master student). Goal: Deploy a hardware architecture for capturing and analyzing LTE/3G cellular network signaling. Report: `hal-04581045`.
- **Open-source Database Analytics** – Supervision of Gaelle Yonga (Master student). Goal: Assess spatio-temporal data representation across public databases, such as OpenCellID and other large-scale datasets, to build an API for evaluating mobile data reliability. The API is part of the MobilityPulse framework of TRiBE Inria and the Mob Sci-Dat Factory project under the French PEPR MOBIDEC program. Code available on GitLab (internal visibility).
- **Motion Sensor-Based Mobile Device Fingerprinting** – Supervision of Carlos Fandino (Bachelor student). Collected motion sensor data from 42 participants on study website, developed device fingerprinting techniques and countermeasures.

11) Visibility

- **Selected Young Researcher**, Heidelberg Laureate Forum (HLF) 2024: One of only 200 young researchers worldwide selected through a competitive process to engage with laureates of the Turing Award or ACM Prize in Computing.
- **Abbe Grant**: ≈ €1800, awarded by the Carl-Zeiss-Stiftung to only 20 of the 200 highly selected young researchers at the 11th Heidelberg Laureate Forum, covering participation costs.
- **SoBigData++ Fellowship**: Transnational Access grant for a 2-week scientific mission in Pisa, Italy.
- **Student Grant:** ACM Sigmetrics'21; **Diversity Grant:** Usenix SOUPS & ATC'21. **Best Student Paper**, CoRes 2023.
- 1st place recipient of the highly competitive Inria CORDI-S PhD scholarship.
- **Valedictorian**, Master of Computer Science Engineering, ENSPY, Cameroon (GPA: 3.81/4.00).

12) Miscellaneous

- **Languages**: French (*Native*), English (*Advanced*), German (*Intermediate*), Spanish (*Basic*)
- **Associative activites:** Member of AniMath (France) Science outreach international actions, Co-founder and member of Cadres360 for workers well-being and balance in all domains.