Héber H. Arcolezi, Ph.D.

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Professional Experience

Oct 2023 – · · · ·	🔖	**Tenured Research Scientist (ISFP)**[1], Inria Grenoble, France
Feb 2022 – Sept 2023	🔖	**Postdoctoral Researcher**, Inria Saclay & École Polytechnique, France

Education

|		
Jun 2019 – Jan 2022	🔖	**Ph.D. in Computer Science**, Université Bourgogne Franche-Comté (UBFC) **Thesis title:** *Production of Categorical Data Verifying Differential Privacy: Conception and Applications to Machine Learning* [link] **Advisors:** Jean-François Couchot, Bechara Al Bouna, and Xiaokui Xiao
Sep 2017 – Aug 2019	🔖	**M.Sc. in Electrical Engineering**, São Paulo State University (UNESP) **Thesis title:** *A Novel Robust and Intelligent Control Based Approach for Human Lower Limb Rehabilitation via Neuromuscular Electrical Stimulation* [link] **Advisor:** Aparecido A. de Carvalho
Jul 2012 – Aug 2017	🔖	**B.Eng. in Electrical Engineering**, Mato Grosso State University (UNEMAT) **Thesis title:** *Um Estudo Complementar ao Projeto de Controle PID no Caso do Pêndulo Invertido (in Portuguese)* [link] **Advisor:** Rogério B. Quirino

Publications

Journal Articles

1. **H. H. Arcolezi**, K. Makhlouf, and C. Palamidessi, "Group fairness under obfuscated sensitive information," *Journal of Computer Security*, vol. 33, no. 4, pp. 239–260, May 2025, ISSN: 1875-8924. 🔗 DOI: 10.1177/0926227x251330212.

2. **H. H. Arcolezi** and S. Gambs, "Revealing the true cost of locally differentially private protocols: An auditing perspective," *Proceedings on Privacy Enhancing Technologies*, vol. 2024, no. 4, pp. 123–141, 2024. 🔗 DOI: 10.56553/popets-2024-0110.

3. K. Makhlouf, **H. H. Arcolezi**, S. Zhioua, G. B. Brahim, and C. Palamidessi, "On the impact of multi-dimensional local differential privacy on fairness," *Data Mining and Knowledge Discovery*, May 2024, ISSN: 1573-756X. 🔗 DOI: 10.1007/s10618-024-01031-0.

4. **H. H. Arcolezi**, S. Gambs, J.-F. Couchot, and C. Palamidessi, "On the risks of collecting multidimensional data under local differential privacy," *Proc. VLDB Endow.*, vol. 16, no. 5, pp. 1126–1139, Jan. 2023, ISSN: 2150-8097. 🔗 DOI: 10.14778/3579075.3579086.

5. **H. H. Arcolezi**, S. Cerna, J.-F. Couchot, C. Guyeux, and A. Makhoul, "Privacy-preserving prediction of victim's mortality and their need for transportation to health facilities," *IEEE Transactions on Industrial Informatics*, vol. 18, no. 8, pp. 5592–5599, 2022. 🔗 DOI: 10.1109/TII.2021.3123588.

6. **H. H. Arcolezi**, J.-F. Couchot, B. A. Bouna, and X. Xiao, "Improving the utility of locally differentially private protocols for longitudinal and multidimensional frequency estimates," *Digital Communications and Networks*, Jul. 2022. 🔗 DOI: 10.1016/j.dcan.2022.07.003.

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[1] Inria ISFP researchers have a light teaching load, ranging from approximately 32 to 64 hours per year. More information at https://www.inria.fr/fr/inria-starting-faculty-position-isfp.

7 **H. H. Arcolezi**, J.-F. Couchot, D. Renaud, B. Al Bouna, and X. Xiao, "Differentially private multivariate time series forecasting of aggregated human mobility with deep learning: Input or gradient perturbation?" *Neural Computing and Applications*, vol. 34, no. 16, pp. 13 355–13 369, Jun. 2022, ISSN: 1433-3058. 🔗 DOI: 10.1007/s00521-022-07393-0.

8 **H. H. Arcolezi**, S. Cerna, C. Guyeux, and J.-F. Couchot, "Preserving geo-indistinguishability of the emergency scene to predict ambulance response time," *Mathematical and Computational Applications*, vol. 26, no. 3, p. 56, Aug. 2021, ISSN: 2297-8747. 🔗 DOI: 10.3390/mca26030056.

9 **H. H. Arcolezi**, W. R. Nunes, R. A. de Araujo, *et al.*, "Rise controller tuning and system identification through machine learning for human lower limb rehabilitation via neuromuscular electrical stimulation," *Engineering Applications of Artificial Intelligence*, vol. 102, p. 104 294, Jun. 2021, ISSN: 0952-1976. 🔗 DOI: 10.1016/j.engappai.2021.104294.

10 S. Cerna, **H. H. Arcolezi**, C. Guyeux, G. Royer-Fey, and C. Chevallier, "Machine learning-based forecasting of firemen ambulances' turnaround time in hospitals, considering the covid-19 impact," *Applied Soft Computing*, vol. 109, p. 107 561, Sep. 2021, ISSN: 1568-4946. 🔗 DOI: 10.1016/j.asoc.2021.107561.

11 **H. H. Arcolezi**, J.-F. Couchot, S. Cerna, *et al.*, "Forecasting the number of firefighter interventions per region with local-differential-privacy-based data," *Computers & Security*, vol. 96, p. 101 888, Sep. 2020, ISSN: 0167-4048. 🔗 DOI: 10.1016/j.cose.2020.101888.

12 **H. H. Arcolezi**, W. R. B. M. Nunes, S. Cerna, *et al.*, "Identifying the knee joint angular position under neuromuscular electrical stimulation via long short-term memory neural networks," *Research on Biomedical Engineering*, vol. 36, no. 4, pp. 511–526, Sep. 2020, ISSN: 2446-4740. 🔗 DOI: 10.1007/s42600-020-00089-1.

Conference Proceedings

1 **H. H. Arcolezi**, M. Alishahi, A.-A. Bendoukha, and N. Kaaniche, "Fair play for individuals, foul play for groups? auditing anonymization's impact on ml fairness," in *ECAI 2025*, IOS Press, Oct. 2025. 🔗 DOI: 10.3233/faia250909.

2 A.-A. Bendoukha, **H. H. Arcolezi**, N. Kaaniche, A. Boudguiga, R. Sirdey, and P.-E. Clet, "Fade: Federated aggregation with discrimination elimination," in *Proceedings of the 2025 ACM Conference on Fairness, Accountability, and Transparency*, ser. FAccT '25, Association for Computing Machinery, 2025, pp. 3182–3195, ISBN: 9798400714825. 🔗 DOI: 10.1145/3715275.3732203.

3 C. Eichler, N. Champeil, N. Anciaux, A. Bensamoun, **H. H. Arcolezi**, and J. M. De Fuentes, "Nob-MIAs: Non-biased membership inference attacks assessment on large language models with ex-post dataset construction," in *Web Information Systems Engineering – WISE 2024*, Singapore: Springer Nature Singapore, 2025, pp. 441–456. 🔗 DOI: 10.1007/978-981-96-0570-5_32.

4 R. Binkyte, C. A. Pinzón, S. Lestyán, K. Jung, **H. H. Arcolezi**, and C. Palamidessi, "Causal discovery under local privacy," in *Proceedings of the Third Conference on Causal Learning and Reasoning*, F. Locatello and V. Didelez, Eds., ser. Proceedings of Machine Learning Research, vol. 236, PMLR, Jan. 2024, pp. 325–383. 🔗 URL: https://proceedings.mlr.press/v236/binkyte24a.html.

5 K. Makhlouf, T. Stefanović, **H. H. Arcolezi**, and C. Palamidessi, "A systematic and formal study of the impact of local differential privacy on fairness: Preliminary results," in *2024 IEEE 37th Computer Security Foundations Symposium (CSF)*, 2024, pp. 1–16. 🔗 DOI: 10.1109/CSF61375.2024.00039.

6 **H. H. Arcolezi**, S. Cerna, and C. Palamidessi, "On the utility gain of iterative bayesian update for locally differentially private mechanisms," in *Data and Applications Security and Privacy XXXVII*, Springer Nature Switzerland, 2023, pp. 165–183, ISBN: 9783031375866. 🔗 DOI: 10.1007/978-3-031-37586-6_11.

7   **H. H. Arcolezi**, K. Makhlouf, and C. Palamidessi, "(local) differential privacy has no disparate impact on fairness," in *Data and Applications Security and Privacy XXXVII*, V. Atluri and A. L. Ferrara, Eds., Cham: Springer Nature Switzerland, 2023, pp. 3–21. 🔗 DOI: 10.1007/978-3-031-37586-6_1.

8   **H. H. Arcolezi**, C. A. Pinzón, C. Palamidessi, and S. Gambs, "Frequency estimation of evolving data under local differential privacy," in *Proceedings of the 26th International Conference on Extending Database Technology, EDBT 2023, Ioannina, Greece, March 28 - March 31, 2023*, OpenProceedings.org, 2023, pp. 512–525. 🔗 DOI: 10.48786/EDBT.2023.44.

9   **H. H. Arcolezi**, J.-F. Couchot, S. Gambs, C. Palamidessi, and M. Zolfaghari, "Multi-freq-ldpy: Multiple frequency estimation under local differential privacy in python," in *Computer Security – ESORICS 2022*, V. Atluri, R. Di Pietro, C. D. Jensen, and W. Meng, Eds., Cham: Springer Nature Switzerland, 2022, pp. 770–775. 🔗 DOI: 10.1007/978-3-031-17143-7_40.

10   **H. H. Arcolezi**, J.-F. Couchot, B. Al Bouna, and X. Xiao, "Random sampling plus fake data: Multidimensional frequency estimates with local differential privacy," in *Proceedings of the 30th ACM International Conference on Information & Knowledge Management*, ACM, Oct. 2021, pp. 47–57. 🔗 DOI: 10.1145/3459637.3482467.

11   **H. H. Arcolezi**, J.-F. Couchot, B. A. Bouna, and X. Xiao, "Longitudinal collection and analysis of mobile phone data with local differential privacy," in *IFIP International Summer School on Privacy and Identity Management*, Springer International Publishing, 2021, pp. 40–57, ISBN: 9783030724658. 🔗 DOI: 10.1007/978-3-030-72465-8_3.

12   **H. H. Arcolezi**, J.-F. Couchot, O. Baala, J.-M. Contet, B. Al Bouna, and X. Xiao, "Mobility modeling through mobile data: Generating an optimized and open dataset respecting privacy," in *2020 International Wireless Communications and Mobile Computing (IWCMC)*, 2020, pp. 1689–1694. 🔗 DOI: 10.1109/IWCMC48107.2020.9148138.

13   S. Cerna, C. Guyeux, **H. H. Arcolezi**, R. Couturier, and G. Royer, "A comparison of lstm and xgboost for predicting firemen interventions," in *Trends and Innovations in Information Systems and Technologies*, Springer International Publishing, 2020, pp. 424–434, ISBN: 9783030456917. 🔗 DOI: 10.1007/978-3-030-45691-7_39.

14   S. Cerna, C. Guyeux, **H. H. Arcolezi**, and G. Royer, "Boosting methods for predicting firemen interventions," in *2020 11th International Conference on Information and Communication Systems (ICICS)*, 2020, pp. 001–006. 🔗 DOI: 10.1109/ICICS49469.2020.239488.

15   **H. H. Arcolezi**, W. R. B. M. Nunes, S. L. C. Ñahuis, M. A. A. Sanches, M. C. M. Teixeira, and A. A. de Carvalho, "A rise-based controller fine-tuned by an improved genetic algorithm for human lower limb rehabilitation via neuromuscular electrical stimulation," in *2019 6th International Conference on Control, Decision and Information Technologies (CoDIT)*, 2019, pp. 1197–1202. 🔗 DOI: 10.1109/CoDIT.2019.8820357.

16   S. L. C. Ñahuis, C. Guyeux, **H. H. Arcolezi**, R. Couturier, G. Royer, and A. D. P. Lotufo, "Long short-term memory for predicting firemen interventions," in *2019 6th International Conference on Control, Decision and Information Technologies (CoDIT)*, 2019, pp. 1132–1137. 🔗 DOI: 10.1109/CoDIT.2019.8820671.

Grants

Grants (continued)

ANR AAPG 2024[2] – JCJC (Young Researcher): 347,310€
Title: *Aligning Privacy, Utility, and Fairness for Responsible AI (AI-PULSE)*
Role: Principal and Unique Investigator

2024 – 2026 **Inria Associated Team[3]: 32,000€**
Title: *Algorithmic Auditing of Privacy and Fairness (AUDIT-PAIR)*
Institutions: Inria (Privatics team), UQAM, and ÉTS Montréal
Role: Principal Investigator at Inria Side

2023 – 2027 **ANR AAPG 2023 – PRCE (Academic and Industry Collaboration): 338,000€**
Title: *Making PostgreSQL Differentially Private for Transparent AI (DIFPRIPOS)*
Role: Member

2024 – 2025 **MIAI Open call to sustain the development and promotion of AI[4]: 10,000€**
Title: *Exploring the Interplay of Differential Privacy and Fairness in ML*
Role: Principal and Unique Investigator

Awards

2025 **Notable Reviewer Award** at USENIX Security 2025

2024 **Best Reviewer Award** at PETS 2024

2023 **Best Paper Award** at DBSec 2023 for the paper "(Local) differential privacy has no disparate impact on fairness"

2021 **Ph.D. Student Mobility Grant (2,300€)** from the University Bourgogne Franche-Comté (UBFC) to visit the Université du Québec à Montréal (UQAM)

2013 **UNEMAT Scholarship (19,200R\$ – 400R\$/month)** to be a collaborator in the Formation of Cooperative Cells (FOCCO) program for 4 years (2013 – 2016)

Teaching

Winter 2024 **Database Management Systems**
Professional Bachelor in Networks and Telecommunication, 8h, Université Grenoble Alpes

Python Programming Fundamentals
Professional Bachelor in Networks and Telecommunication, 10h, Université Grenoble Alpes

Spring 2024 **Database Management Systems**
Professional Bachelor in Networks and Telecommunication, 27h, Université Grenoble Alpes

Spring 2023 **Introduction to Computer Science with Java**
Engineer degree and Bachelor, 40h, École Polytechnique

Spring 2022 **Introduction to Computer Science with Java**
Engineer degree and Bachelor, 40h, École Polytechnique

Spring 2021 **Privacy for IoT**
Master IoT, 20h, Université Bourgogne Franche-Comté

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[2]Appel à Projets Générique de l'Agence Nationale de la Recherche (ANR). This is the French equivalent of the NSF CAREER award.
[3]This program funds mobility between Inria and an international research group for 3 years. More info at https://www.inria.fr/sites/default/files/2023-07/Appel-Equipes-Associees-2024-2.pdf.
[4]https://miai.univ-grenoble-alpes.fr/research/projects-for-the-development-and-promotion-of-ai/

Teaching (continued)

Winter 2020 ▮ **Privacy for IoT**
Master IoT, 20h, Université Bourgogne Franche-Comté

Students

Jun 2025 – Aug 2025 ▮ **Mohammed Amine Benrahmoune**, Inria Grenoble, France
Type: Master Student (Internship)
Project Title: *On the Interplay of Backdoor and Differential Privacy in ML*

Fev 2025 – Sep 2025 ▮ **Vinicius Gabriel Verona de Resende**, Inria Grenoble, France
Type: Master Student (Internship)
Project Title: *Private- and Fairness-Aware Machine Learning*

Fev 2025 – Jun 2025 ▮ **Annika Sauer**, Inria Grenoble (France) & KIT (Germany)
Type: Master Student
Project Title: *Measurement of Attack Resilience of Differential Privacy*

May 2022 – Oct 2024 ▮ **Karima Makhlouf**, Inria Saclay & École Polytechnique, France.
Type: Ph.D. Student
Co-Supervisor: Catuscia Palamidessi
Thesis Title: *Advancing Ethical and Responsible AI: Exploring Fairness, Privacy, and Explainability through Causal Perspectives*

Apr 2023 – Jun 2023 ▮ **Tamara Stefanovic**, Inria Saclay & École Polytechnique, France.
Type: Visiting Ph.D. Student
Co-Supervisor: Catuscia Palamidessi
Internship Project: *Sympsom's Paradox Under Obfuscated Data*

Feb 2022 – Dec 2022 ▮ **Majid Zolfaghari**, Inria Saclay & École Polytechnique, France
Type: Visiting Ph.D. Student
Co-Supervisor: Catuscia Palamidessi
Internship Project: *Personalized Local Differential Privacy in Continual Reports*

Services

Program Committee

2026 ▮ CCS, AAAI, ICLR

2025 ▮ CCS, PETS, USENIX Security, ICLR

2024 ▮ CCS, PETS, IJCAI, FAccT, SAC, ICLR

2023 ▮ NeurIPS, FAccT, ECML PKDD, CCS, ICLR

2022 ▮ ECML PKDD

Conference & Workshop Organization

2024 ▮ 14th Atelier sur la Protection de la Vie Privée[5] (APVP 2024), France

2023 ▮ 13th Atelier sur la Protection de la Vie Privée (APVP 2023), France

2022 ▮ 1st Comète Workshop on Ethical AI[6], France

2017 ▮ II Semana da Animação, Modelagem e Automação, Brazil

2014 ▮ I Semana da Faculdade de Ciencias Exatas, Brazil

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[5]Translates to "Workshop on Privacy". This is the national French workshop from the privacy-preserving community GT-PVP.
[6]https://www.lix.polytechnique.fr/ethicalai/previous/2022/

Talks

2025   **Keynote Speaker:** *"Interplay of privacy and fairness in machine learning"* at 2nd Unite! Research School (URS 2025)

         Keynote Speaker: *"Intersections of Fairness and Privacy: A Local Differential Privacy Perspective"* at 9th GDR RSD/ASF Winter School on Distributed Systems & Networks 2025

2024   **Invited Tutorial:** *"Securing Data with Local Differential Privacy: Concepts, Protocols, and Practical Applications"* at Selected Areas in Cryptography Summer School 2024

2023   **Invited Talk:** *"Locally differentially private protocols for frequency estimation of longitudinal data"* at Groupe de travail Protection de la Vie Privée (GT-PVP)

2022   **Invited Tutorial:** *"A Brief Introduction to Local Differential Privacy"* at SYSTOPIA Lab

         Invited Talk: *"Data anonymization and Artificial Intelligence Models (in Portuguese)"* at Hospital Risoleta Tolentino Neves (HRTN)

2021   **Invited Talk:** *"Improving Utility and Privacy in Multidimensional Frequency Estimates Under Local Differential Privacy"* at Université du Québec à Montréal (LATECE Seminar)

Skills

Languages   Strong reading, writing and speaking for English, French, Spanish, and Portuguese

Coding   Python, Java, Matlab & Simulink, Visual Basic, LaTeX

Databases   MySQL, PostgreSQL

Misc.   Academic research, teaching, supervising, consultation, and publishing