Bristena Oprisanu, PhD

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Summary

Privacy-focused ML Engineer and Researcher with 6+ years building production-scale federated learning systems for healthcare. PhD in Computer Science (UCL) specializing in privacy-preserving data sharing technologies. Published at top-tier venues (ICML, NDSS, USENIX Security) with research advancing the intersection of machine learning, cryptography, and genomic privacy. Proven ability to translate cutting-edge research into deployed, privacy-preserving systems serving global healthcare institutions.

Experience

Bitfount   London, UK
ML Engineer   *Aug 2021 – Present*

- Architected production federated learning platform deployed across 12+ healthcare institutions (Moorfields Eye Hospital, Auckland Eye, Sanofi, UCL) enabling distributed ML on TB-scale medical imaging data, directly contributing to 64% improvement in patient pre-screening accuracy
- Built scalable data pipelines for medical imaging (DICOM/OCT from Zeiss, Heidelberg, Topcon) with harmonized processing across device variants, datasource caching, and schema management
- Implemented privacy-preserving computation protocols including Private Set Intersection (PSI), differential privacy budget management, and gradient clipping for secure aggregation
- Onboarded and mentored 7 engineers on backend systems and privacy-preserving ML practices; led end-to-end feature delivery within 6-week Shape Up cycles owning technical pitches and cross-functional coordination

University College London   London, UK
Teaching Assistant   *Sep 2017 – Jan 2021*

- Designed and delivered tutorial sessions for 50+ students per semester in Introduction to Cryptography and Privacy Enhancing Technologies courses
- Created coursework assignments and exam questions focusing on applied cryptography and privacy-preserving algorithms

The Alan Turing Institute   London, UK
Research Assistant   *Oct 2018 – Apr 2019*

- Developed evaluation frameworks for comparing utility-privacy trade-offs across statistical models (PrivBayes) and generative models (Priv-VAE, DP-SYN)
- Implemented and benchmarked privacy-preserving algorithms on real-world datasets, establishing performance baselines for genomic data applications
- Presented research findings at internal seminars and contributed to grant proposals for follow-up research projects

Barclays Bank Plc   London, UK
Graduate Programme   *Aug 2014 – Feb 2016*

Middle Office Analyst → Specialist Case Manager → Business Analyst (KYC)

- Automated KPI reporting and issue tracking using VBA, eliminating 8 hours/week of manual work and improving data accuracy
- Managed workflow allocation for 15-person offshore team, reducing payment issue resolution time by 30%
- Led technology landscape review across global Corporate risk assessment units for KYC transformation initiative

Selected Publications

2022:

- T Stadler, **B Oprisanu**, C Troncoso. *"Synthetic Data – Anonymisation Groundhog Day"*. USENIX Security 2022. Demonstrated fundamental limitations of synthetic data as a privacy mechanism.
- G Ganev, **B Oprisanu**, E De Cristofaro. *"Robin Hood and Matthew Effects: Differential Privacy Has Disparate Impact on Synthetic Data"*. ICML 2022. Analyzed fairness implications of differential privacy in data synthesis.
- **B Oprisanu**, G Ganev, E De Cristofaro. *"On Utility and Privacy in Synthetic Genomic Data"*. NDSS 2022. First comprehensive evaluation of synthetic genomic data utility-privacy trade-offs.

Previous:

- **B Oprisanu**, C Dessimoz, E De Cristofaro. *"How Much Does GenoGuard Really Guard?"*. WPES 2019. Empirical analysis of long-term security for genomic data encryption.
- **B Oprisanu**, E De Cristofaro. *"AnoniMME: Bringing Anonymity to the Matchmaker Exchange Platform"*. ISMB 2018. Privacy-preserving rare disease gene discovery.
- N Courtois, **MB Oprisanu**, K Schmeh. *"Linear Cryptanalysis and Block Cipher Design in East Germany"*. Cryptologia 2018.

Technical Skills

ML & Privacy:	PyTorch, HuggingFace Transformers, Federated Learning, Differential Privacy, Secure Aggregation
Programming:	Python (advanced), SQL, TypeScript, C++
Data & Infra:	DICOM/OCT Processing, PostgreSQL, Docker, Async Programming, APIs, Git
Domain:	Medical Imaging, Clinical Trials, Privacy-Preserving ML, Cryptographic Protocols

Education

University College London   **London, UK**
PhD Computer Science   *2017–2021*
Thesis: Evaluating Methods for Privacy-Preserving Data Sharing in Genomics

University College London   **London, UK**
MSc Information Security   *2016–2017*
Thesis: Bringing Anonymity to Genomic Data-Sharing Platforms

University College London   **London, UK**
MSci Mathematics with Economics   *2010–2014*
Upper Second Class Honours (2.1)

Awards & Recognition

- Best MSc Thesis Award from Industrial Perspective, Kaspersky Academy (2017)
- PhD Scholarship, University College London (2017–2021)