

QUENTIN CHAPPAT

Cell phone: (646) 361 2763
Email: quentin.chappat@columbia.edu

Portfolio: quentin-chappat.netlify.app
LinkedIn: linkedin.com/in/quentin-chappat

EDUCATION

Columbia University New York, NY
Master of Science in Biomedical Engineering, GPA: 4.06/4 Sep 2022 - Dec 2023
Coursework: Statistical Machine Learning, Deep Learning In Biomedical Imaging, and Dynamic Programming

Télécom Paris, Institut Polytechnique de Paris Palaiseau, FR
Bachelor of Science & Master of Science in Engineering, GPA: 3.94/4 Sep 2018 - Dec 2023
Coursework: Advanced Linear Algebra, Advanced Bayesian Statistics, Optimization Theory, and Machine Learning

PROFESSIONAL EXPERIENCE

Balbix New York, NY
Senior AI Engineer Jan 2024 - Present

- Led the rolling of an Airflow DAG using Apache Spark and involving Delta Lake and Elasticsearch databases to improve Balbix's current data pipeline responsible for the product UI's proper functioning.
- Created a statistical framework for normalizing distributions to provide clients with readable insights of their cyber-risk.
- Optimize Balbix's cloud infrastructure to reduce cost of Apache Spark tasks by 50%.
- Conducted research and development within the cyber risk quantification team presenting research papers and modeling cybersecurity problems.
- Developed a new feature using an improved Shapley values-based framework to provide clients' with their next best steps for them to prioritize their IT teams' work and improve their cyber-risk posture.

AI/ML Co-Op May 2023 - Dec 2023

- Enhanced Balbix's Cyber Risk Quantification platform exploiting graph theory and MITRE's CAPEC dataset.
- Pioneered a novel cyber risk scoring methodology manipulating Shapley values to prioritize 1000s of vulnerabilities' mitigations based on potential financial impact providing more nuanced insights than traditional CVSS scores.
- Optimized scoring algorithm runtime by 500% by parallelizing computations in Apache Spark using PandasUDF.

Department of Mathematics at Columbia University New York, NY
Teaching Assistant Sep 2022 - Dec 2023

- Evaluated and overlooked assignments, projects and exams performance of over 350 students.
- Selected as a finalist of the University-wide '2023 Awards for Outstanding Teaching by a Graduate Student'.
- Enhanced Calculus and Linear Algebra students' learning by providing individualized assistance to lesson plans.

Télécom Etude Palaiseau, FR
Machine Learning Consultant Jun 2022 - Jul 2022

- Developed machine learning models using Linear Regression, SVM, and XGBoost to forecast time-series of daily attendance levels over 7 days for restaurants in Paris.
- Collected and pre-processed automatically open data depending on restaurants' locations from 6 different sources.
- Released a statistical method employing Meta Prophet to predict attendance levels with 95% confidence intervals.

PROJECTS

MRI Motion Artifacts Simulation & Correction using Complex-Valued Deep Learning Mar 2023 - May 2023

- Implemented deep learning solutions in PyTorch using complex-valued networks to address motion artifacts in MRI.
- Simulated motion corruption on raw complex k-space MRI datasets by modifying the open-source package TorchIO.
- Trained 5 models for motion correction and high-quality image reconstruction directly from raw k-space data.

Robust Multi-Omics Prediction for RNA Expression & Protein Surface Levels Feb 2023 - May 2023

- Developed 10+ machine learning models (LR, MLP, XGBoost & SVM) to predict RNA expression and protein levels.
- Preprocessed data from 105K+ cells leveraging sparse matrices and reduced dimensions applying SVD and PCA.
- Improved performance by 10% compared to the best scoring on Kaggle.

SKILLS

Libraries & Software: PyTorch, TensorFlow, Apache (Py)Spark, Git, Scikit-learn, XGBoost, Pandas, Scipy & Numpy
Programming languages: Python, Java, R, SQL, HTML, JavaScript & C
Cloud development: Airflow, Elasticsearch, Kubernetes, AWS S3, AWS Lambda, Delta Lake, Docker
Languages: Native French & Fluent Italian