Tristan Lazard

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EDUCATION

PSL University, Paris, 75006
ITI - MS Innovation , Entrepreneurship and innovation.   2018-2019.

Sorbonne University, Paris   2016-2017
Master 2 : Applied mathematics Thesis: "A model of random mutualistic network.".

Ecole Normale Supérieure, rue d'Ulm, Paris
Master 1 : Evolutionary biology and ecology   2013-2016
Bachelor in life-sciences

Lycée Saint-Louis, Paris   2011-2013
Classe préparatoire BCPST

SKILLS

Languages: French (mother tongue), fluent English and debutant in Spanish.
Programming languages: Python, Bash, LaTeX, nextflow.
Computing skills: docker, slurm, cloud-computing, GPU-computing, ML+image processing usual libs (pytorch, openCV, PIL, sklearn...).

PROFESSIONAL EXPERIENCE

PhD in BioInformatics - 📕 - 📄   CBIO - Mines-Paristech
December 2019 - December 2023   Paris, France

- Developed interpretability methods for Multiple Instance Learning architectures to better understand phenotypic manifestations of HRD in breast cancers link to paper.
- Developed **GigaSSL** , the first unsupervised learning algorithm at the whole-slide scale (1 slide = 1 representation), where the representations are at least as good as those from specialized algorithms across a wide range of downstream tasks (paper 1, paper 2).
- Applied the previous algorithm in various data challenges: drivendata-Visiomel (1st/542 public leaderboard - 3rd/542 private leaderboard, $5,000 cash prize), kaggle-UBC-Ocean (2nd/1326 public leaderboard - 17th/1326 private leaderboard). A very simple linear model trained on GigaSSL slide representations competed with complex MIL and ensembling models.

Achievements:
- **5 publications**, 3 first authors, in biological journals and machine learning venues.
- 1 patent.
- **Prize-winning solution (5000$)** at the VisioMel challenge. Link to the solution

Engineering internship   CMM, Mines-Paristech
Jan - July 2019   Fontainebleau, France
Automatic counting of Melanocytes: In partnership with L'Oréal, I created an algorithm for automatically counting melanocytes in microscopic images. This solution has been integrated into the processing pipeline and is now utilized in regular research and led to an article in a peer-reviewed journal.

Research internship   IBPS, Sorbonne university
Jan - August 2018   Paris, France
Large scale phylogenetic tree inference: Development of an algorithm for calculating
phylogenetic trees from genetic sequence data (-omics data). .

PUBLICATIONS   **Lazard, T.**, Bataillon, G., Naylor, P., Popova, T., Bidard, G.-C., Stoppa-Lyonnet,
D., Stern, M.- H., Decencie' re, E., Walter, T., and Vincent-Sal- omon, A. (2022).
Deep Learning identifies new morphological patterns of Homologous Recombination
Deficiency in luminal breast cancers from whole slide images. **Cell Reports Medicine**

Lazard, T., Lerousseau, M., Decencière, E., Walter, T. (2023). Giga-SSL: Self-
Supervised Learning for Gigapixel Images. Proceedings of the IEEE/CVF Conference
on Computer Vision and Pattern Recognition **(CVPR) Workshops**.

T. Lazard et al., Democratizing computational pathology: optimized Whole Slide Im-
age representations for The Cancer Genome Atlas (2024), doi: 10.1101/2023.12.04.569894.
preprint

Lazard, T., Blusseau S., Velasco-Forero S, Decencière E., Flouret V., Cohen C.,
Baldeweck T. Applying Deep Learning to Melanocyte Counting on Fluorescent TRP1
Labelled Images of In Vitro Skin Model (2022). **Image Analysis Stereology**.

Lubrano M., **Lazard T.**, Balezo G., Bellahsen-Harrar Y., Badoual C., Berlemont S.,
Walter T. (2022). **Computer Vision–ECCV** 2022 Workshops: Tel Aviv, Israel,
October 23–27, 2022, Proceedings.

Naylor P, **Lazard T**, Bataillon G, Laé M, Vincent-Salomon A, Hamy AS, et al. Pre-
diction of Treatment Response in Triple Negative Breast Cancer From Whole Slide
Images (2022). **Front Signal Process**.

T. Lazard, et. al., Cancer du sein - Utilisation de l'intelligence artificielle pour prédire
le statut tumoral relatif à la recombinaison homologue (2023). **Médecine et Sciences**

A. Beaufrère*, **T. Lazard***, et. al. Self-supervised learning to predict intrahepatic
cholangiocarcinoma transcriptomic classes on routine histology (2024). **Preprint**

INTERESTS   Climbing, harmonica, poetry and litterature.