Alek **Fröhlich**
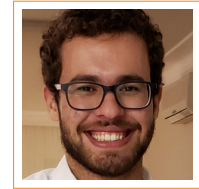*Computer Scientist*

Bandeirantes Ave, 3900,
Ribeirão Preto, São Paulo
📱 *+55 48998686944*
✉ *alek.frohlich@gmail.com*
 alekfrohlich

Education

2016-2016	**Exchange Student**, *University High School*, Irvine, *AGPA 4.2*
	AP Computer Science
2018–2022	**B.Sc. in Computer Science**, *UFSC*, Florianópolis, *Grade 9.26*
	Emphasis on Systems Programming and Mathematics
2022–present	**M.Sc. in Mathematics**, *UFSC*, Florianópolis, *Grade 9.82*
	Emphasis on Optimization and Machine Learning
2023	**Summer School Student**, *IMPA*, Rio de Janeiro, *Grade A-*
	Functional Analysis course based on Brezis' *Functional Analysis, Sobolev Spaces, and PDEs*
2023	**Visiting Student**, *IMPA*, Rio de Janeiro
	Theory of Machine Learning course, Optimization seminar, and PINNs seminar

Work Experience

2019	**Software Engineer**, *LabSEC*, Florianópolis
	Access Control to University Restaurant
2019	**Software Engineer**, *LabSEC and Kryptus*, Florianópolis
	PSC Integration with Hawa and kNET
2023–present	**Research Intern**, *Laboratory for Translational Data Science*, Ribeirão Preto
	Machine Learning Methods in Her2+ Breast Cancer

Programming Skills

Scripting	Python, R, Octave/Matlab	Assembly	x86, ARM, RISC-V, MIPS
Core	C, C++, Java	Web	JavaScript, HTML, CSS
Others	Cuda, Haskell, Prolog, Scheme	Databases	SQL

Awards

2019	**National Institute of Information Technology (ITI) Scholarship**
	Awarded for my work on the Cryptographic Service Provider developed at LabSEC
2019	**Foundation for Support to Research and Extension (FAPEU) Scholarship**
	Awarded for developing the access control system for UFSC's university restaurant
2019	**Santa Catarina Teaching and Engineering Foudation (FEESC) Scholarship**
	Awarded for my work on the Cryptographic Service Provider developed at LabSEC
2022-2024	**CAPES Master's Scholarship**
	Coordination of Superior Level Staff Improvement (CAPES) financed my master studies

Events

2018   **I Workshop on Quantum Computing**, *UFSC*

2018   **Chip in the Pampa**, Federal University of Pelotas (UFP)

2019   **The Developer's Conference**, Florianópolis

2019   **IX Brazilian Symposium on Computing Systems Engineering**, Federal University of Rio Grande do Norte (UFRN)

2020   **Machine Learning and Combinatorics Workshop (Online)**, Moscow Institute of Physics and Technology (MIPT)

2022   **I Meeting of Graduate Students in Mathematics at UFSC**
Functional analysis and kernel methods

2023   **34th Brazilian Mathematical Colloquium**, IMPA
SVM: the optimization problem, the learning guarantees, and the kernel trick

2023   **Workshop in Optimization and Inverse Problems**, UFSC

Publications

Alek Fröhlich, André Turcato, and Daniel Tiezzi. Scientific methodology for descriptive statistics using R. *ULAKES Journal of Medicine*, 3(2), 2023.

Daniel Tiezzi, **Alek Fröhlich**, Stefano Pagnotta, and Fernando Chahud. 197P computational pathology pipeline enables quantification of intratumor heterogeneity and tumor-infiltrating lymphocyte score. In *ESMO Immuno-Oncology Congress 2023*, Geneva, Switzerland, 2023. ESMO.

Daniel Tiezzi, Fabiana Buono, **Alek Fröhlich**, and Stefano Pagnotta. 383P molecular/genomic profile enhances prediction of response to target therapy in her2-positive breast cancer. In *ESMO Targeted Anticancer Therapies Congress 2024*, Paris, France, 2024. ESMO.

Isabela Carlotti et al. Machine learning can reliably predict malignancy of breast lesions based on clinical and ultrasonographic features. *Breast Cancer Research and Treatment*, submitted.

Daniel Tiezzi, **Alek Fröhlich**, Stefano Pagnotta, and Fernando Chahud. Deep learning enables the quantification of intratumor heterogeneity in breast histopathology. In preparation.