# Julian Stamp

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## SUMMARY

I am a researcher with a strong technical and statistical background, bringing **5+ years of experience** in both academic research and professional consulting. My expertise includes **Python, R, and C++**, with a strong focus on **machine learning** algorithms and **statistical modeling**. I am the **author and maintainer** of multiple **open-source statistical software** packages.

## EDUCATION

**Brown University**                                              Providence, RI, USA
*Ph.D. in Computer Science & Computational Biology*              *2021 – 2025 (expected)*

- **Thesis:** Statistical and Computational Advances for Detecting Nonlinear Contributions to Complex Traits

**Ludwig Maximilian University of Munich**                       Munich, BY, Germany
*M.S. in Physics*                                                *2016 – 2018*

**University of Konstanz**                                       Konstanz, Germany
*B.S. in Physics*                                                *2012 – 2016*

## TECHNICAL SKILLS

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|---|---|---|
| **Languages** | : | Python, R, C++, Groovy, Matlab |
| **Frameworks** | : | PyTorch, TensorFlow, ScikitLearn, Numpy, Scipy, Pandas |
| **Dev Tools** | : | Git, Github, Bitbucket, OpenShift, Jenkins, Docker |
| **Other** | : | Statistics, Research, Genetics, Biology, Physics, Project Management, HPC, Slurm, OpenMP, Software Automation |

## RESEARCH AND INDUSTRY EXPERIENCE (3/6)

**Ph.D. Candidate**                                              Jan. 2021 – 2025 (expected)
*Brown University*                                               *Providence, RI, USA*

- Identified open scientific questions, **mathematical problems** and **algorithmic challenges** in studying human disease.
- Developed **statistical models** and **machine learning algorithms** capable to analyze large human data **improving power by up to 80%** compared to state of the art models.
- Developed open-source **softare implementations** of the machine learning algorithms that run $10\times$ **to** $90\times$ **faster** than comparable state of the art algorithms.

**Software Consultant**                                          May 2019 – Nov. 2020
*TNG Technology Consulting GmbH*                                 *Munich, BY, Germany*

- Worked in **cross-functional teams**, collaborating with developers, DevOps engineers, and stakeholders of a global insurance company to **align technical solutions with business objectives**.
- **Collaboratively** developed targets and road maps for the **cloud migration and automation** of the **software build infrastructure**.
- Developed software **build & testing automation** and **cloud deployment infrastructure & automation** for testing and production environments.

**Research Assistant**                                           Mar. 2017 – Dec. 2017
*Max Planck Institute for Neurobiology*                          *Munich, Germany*

- Independently **reviewed scientific literature** to learn algorithms to **process 2-dimensional images** to **reconstruct a 3-dimensional anatomical representation** of a mouse brain.
- Developed software for **image alignment** and **3-dimensional reconstruction** of anatomical images.

## Publications

[1] **Stamp, J.**, Pattillo Smith, S., Weinreich, D., & Crawford, L. (2025). Sparse modeling of interactions enables fast detection of genome-wide epistasis in biobank-scale studies. *bioRxiv*, 2025–2001.

[2] Kim, I. E., Jr, Oduor, C., **Stamp, J.**, Luftig, M. A., Moormann, A. M., Crawford, L., & Bailey, J. (2025). Incorporation of Epstein–Barr viral variation implicates significance of Latent Membrane Protein 1 in survival prediction and prognostic subgrouping in Burkitt lymphoma. *International Journal of Cancer*

[3] **Stamp, J.**, Crawford, L. (2025). Discovery of Epistasis in cardiac traits. *Nature Cardiovascular Research* - News and Views article (soon to be published)

[4] Smith, S. P., Darnell, G., Udwin, D., **Stamp, J.**, Harpak, A., Ramachandran, S., & Crawford, L. (2024). Discovering non-additive heritability using additive GWAS summary statistics. *Elife*, 13, e90459.

[5] Li, K., Chaguza, C., **Stamp, J.**, Chew, Y. T., Chen, N. F. G., Ferguson, D., ... Others. (2024). Genome-wide association study between SARS-CoV-2 single nucleotide polymorphisms and virus copies during infections. *PLOS Computational Biology*, 20(9), e1012469.

[6] Balvert, M., Cooper-Knock, J., **Stamp, J.**, Byrne, R. P., Mourragui, S., van Gils, J., ... Others. (2024). Considerations in the search for epistasis. *Genome Biology*, 25(1), 296.

[7] **Stamp, J.**, DenAdel, A., Weinreich, D., & Crawford, L. (2023). Leveraging the genetic correlation between traits improves the detection of epistasis in genome-wide association studies. *G3: Genes, Genomes, Genetics*, 13(8), jkad118.

[8] Edeleva, E., Salditt, A., **Stamp, J.**, Schwintek, P., Boekhoven, J., & Braun, D. (2019). Continuous nonenzymatic cross-replication of DNA strands with in situ activated DNA oligonucleotides. *Chemical Science*, 10(22), 5807–5814.

## Software

[1] **Stamp, J.**, Crawford, L. (2025). smer: Sparse Marginal Epistasis Test. *R package version 0.0.1*, https://github.com/lcrawlab/sme.

[2] **Stamp, J.**, Crawford, L. (2024). mvMAPIT: Multivariate Genome Wide Marginal Epistasis Test. *R package version 2.0.3*, https://github.com/lcrawlab/mvMAPIT.

[3] **Stamp, J.**, Crawford, L. (2025) cphMAPIT: Cox Proportional Hazards Marginal Epistasis Test. *R package (to be published)*, https://github.com/jdstamp/cphmapit.

## Presentations & Invited Lectures

[1] **Stamp, J.** (2023) Leveraging the Genetic Correlation between Traits Improves the Detection of Epistasis in Genome-wide Association Studies. *Intelligent Systems for Molecular Biology*. Lyon, France

[2] **Stamp, J.** (2023) Partitioning the Non-additive Variation of Complex Traits. *A Multidisciplinary Approach to Epistasis Detection*. Lorentz Center, Leiden University, Leiden, Netherlands

## Fellowships

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| **Vartan Gregorian Fellowship** | 2021-2022 |
| *Brown University* | *Providence, RI* |
| **Erasmus Stipend** | 2018 |
| *Ludwig Maximilian University* | *Munich, Germany* |
| **PROMOS Stipend** | 2016 |
| *University of Konstanz* | *Konstanz, Germany* |

## Community Service

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| **Educator (Volunteering)** | Jun. & Jul. 2015 |
| *Orphanage for boys, Fundación Alalay* | *La Paz, Bolivia* |
| **Educator (Volunteering)** | 2011 – 2012 |
| *Pre-school, École Perceval* | *Chatou, France* |