Julian Dominik Stamp

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Experience

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| TNG Technology Consulting GmbH  May 2019 – November 2020 | Software Consultant  Member of the **build management** team for several software projects of an insurance company  Setting up build infrastructure and automation with cloud technologies  **Technologies:** Groovy, Shell, Docker, Git, Maven, Openshift, Cloudfoundry, Jenkins, Nexus |

Education

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| Brown University, USA  2020 – present | PhD Computer Science  **Modules included:** Statistical Inference I, Algorithms CompBio & Bioinfomatics, Bayesian Statistical Methods, Inference in Genomics and Molecular Biology, Foundations Population Genetics, Linear Models, Scientific Communication  **Research Interests:** Statistical Methods for studying nonlinear contributions to trait variance, genetic architecture of complex traits, epistasis and gene by environment interactions  **Advisor:** Lorin Crawford, Daniel Weinreich |
| Ludwig-Maximilians-Universität München, Germany  2016 - 2018 | MSc Physics/Biophysics (GPA 1.29, scale 1.0 - 4.0 with 1.0 highest mark)  **Modules included:** Nonlinear dynamics and pattern formation, stochastic processes in physics and biology, biophysics of systems, biophysics of the cell, advanced solid state physics, advanced quantum mechanics, advanced statistical physics, C-programming  **Master Thesis:** Nonequilibrium Conditions for Molecular Evolution: EDC-based Ligation in Thermal Traps (**graded with** **1.0** , scale 1.0 - 4.0 with 1.0 highest mark)  **Advisor:** Prof. Dieter Braun |
| University Konstanz,  Germany  2012 - 2016 | BSc Physics (GPA 1.5, scale 1.0 - 4.0 with 1.0 highest mark)  **Modules included:** Integrated course physics I-IV (comprises mechanics, hydrodynamics, electrodynamics, thermodynamics, analytical mechanics, optics, special relativity, quantum mechanics, etc. ), beginner laboratory course I-IV, calculus I-III, linear algebra, complex analysis, computer course for mathematicians, solid state physics, statistical mechanics, advanced laboratory course  **Bachelor Thesis:** Comparison between Mechanically Controlled Break Junctions and Scanning Tunnelling Microscope-based Break Junctions for Characterizing Single-Molecule Contacts  **Advisor:** Prof. Elke Scheer |

Research Experience

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| Ludwig-Maximilians-Universität München,  Germany  Oct 2017 - Nov 2018 | **Thesis Research** at the Systems Biophysics laboratory of **Prof. Dieter Braun**  **Topic:** DNA ligation with EDC in thermal traps   * Comsol Simulations of thermal traps, LabView Simulations of random motion of particles in flow fields and temperature gradients * Experimental Realization of simulations * HPLC-MS, Bioanalyzer, UV-spectroscopy |
| Max Planck Institute for Neurobiology, Munich  March 2017 – Dec 2017 | **Research Assistant** at department of **Prof. Winfried Denk** under supervision of **Dr. Shawn Mikula**  **Topic:** image registration and tile stitching of anatomical EM images   * Translating existing code from Matlab to Python, literature review of image registration methods |
| Columbia University, USA  May 2016 – Sept 2016 | **Visiting Scholar** at the Molecular Electronics laboratory of **Dr. Latha Venkataraman**  **Topic:** single-molecule junction characterization with MCBJ and STM-BJ   * Optimization of measurement technology and data acquisition for the MCBJ * Data acquisition with MCBJ and STM-BJ * Coding and conducting the analysis of data of single-molecule break junctions with IGOR Pro |
| Stony Brook University, USA  Dec 2014 – May 2015 | **Research assistant** at the Cognitive Neuroscience laboratory of **Dr. Hoi-Chung Leung**  **Topic:** spatial working memory maintenance   * Coded and conducted the analysis of behavioural data in MATLAB, conducted experiments with human subjects * Poster presentation at the 2015 URECA Undergraduate Research Symposium: **Stamp JD\***, Lee AS\*, Manza P, O’Rawe J, Leung HC. (2015). Exploring the neurochemical basis of human spatial working memory maintenance with eye blink activity. *2015 URECA Undergraduate Research Symposium*, Stony Brook, NY, April 29. *\*Authors contributed equally to this work.* |

Publications

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| **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* |
| **Stamp J**., Crawford L. (2025). *smer: Sparse Marginal Epistasis Test*. <https://github.com/lcrawlab/sme>, <https://lcrawlab.github.io/sme/>. (R Package) |
| Balvert, M., Cooper-Knock, J., **Stamp, J.** *et al.* Considerations in the search for epistasis. *Genome Biol* **25**, 296 (2024). https://doi.org/10.1186/s13059-024-03427-z |
| Li, K., Chaguza, C., **Stamp, J.**, Chew, Y. T., Chen, N. F., Ferguson, D., ... & Grubaugh, N. D. (2024). Genome-wide association study between SARS-CoV-2 single nucleotide polymorphisms and virus copies during infections. *PLOS Computational Biology*, *20*(9), e1012469. |
| Kim Jr., I. E., Oduor, C., **Stamp, J.**, Luftig, M. A, Moormann, A. M, Crawford, L., Bailey, J. (2024). Incorporation of Epstein-Barr viral variation implicates significance of LMP1 in survival prediction and prognostic subgrouping in Burkitt lymphoma. *biorXiv (preprint)* |
| Pattillo Smith S., Darnell G., Udwin, D., **Stamp J.,** Harpak, A., Ramachandran S., Crawford L. (2024). Discovering non-additive heritability using additive GWAS summary statistics. eLife |
| **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* |
| **Stamp J**., Crawford L. (2023). *mvMAPIT: Multivariate Genome Wide Marginal Epistasis Test*. <https://github.com/lcrawlab/mvMAPIT>, <https://lcrawlab.github.io/mvMAPIT/>. (R Package) |
| 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*. |

Grants and Conferences

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| ISMB 2023 | Lyon, Jul. 2023  **J. Stamp**, A. DenAdel, D. Weinreich, L. Crawford (2023). Leveraging the Genetic Correlation between Traits Improves the Detection of Epistasis in Genome-wide Association Studies. |
| A multidisciplinary approach to epistasis detection | Leiden, Jul. 2023  **J. Stamp**, L. Crawford (2023). Partitioning the non-additive variation of complex traits. |
| Vartan Gregorian Fellowship | Endowed Fellowship for the Academic Year 2021-2022. |
| Erasmus Stipend | Ludwig-Maximilians-Universität, 2018  Grant for the exchange with Universidad de Granada, funded by the European Union |
| Molecular Origins of Life CAS Conference | Munich, Oct. 2018  P. Schwintek, **J. Stamp**, C. Mast, and Dieter Braun\* (2018). Monitoring the accumulation of molecules inside hydrothermal chambers via UV-Spectroscopy. |
| Neurostorm Hackathon | Woods Hole, Massachusets, Oct. 2017  Conference on the **processing of large-scale neuroimaging data**. Participation sponsored by the Grossman Institute for Neuroscience (University of Chicago), travel sponsored by the Max-Planck Institute of Neurobiology, Munich |
| PROMOS Stipend | University of Konstanz, 2016  Grant for conducting **thesis research at Columbia University**, funded by the DAAD and sponsored by Bundesministerium für Bildung und Forschung |

Community Service

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| Fundación Alalay, Bolivia  June 2015 –  July 2015 | Working for the Fundación Alalay in La Paz, Bolivia  Working in an orphanage, working with street children, problem solving, mediation, communication with administrative staff  Self organised community service |
| École Perceval, France  Sept 2011 –  July 2012 | Educational assistant at École Perceval in Paris, France  Assisting the educators with the day-to-day work, teamwork, problem solving, mediation, communication with parents or guardians  Federal Volunteer Community Service, sponsored by Freunde der Erziehungskunst Rudolf Steiners |

Exchange Programs

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| Universidad de Granada, Spain  Sep 2018 - Jan 2019 | **Modules included**: Numerical Analysis of PDE and Approximation, Colloids and Interfaces |
| Stony Brook University, USA  2014 - 2015 | **Modules included:** applied real analysis, data analysis, nuclear and particle physics, logic and critical reasoning, moral reasoning  **Research methods included:** Eye Link software, MATLAB |

IT Skills and Languages

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| Languages: | Proficient in **German** and **English**, fluent in **French**, good knowledge of **Spanish** |
| Technologies: | R, C++, Python, Shell, Docker, Git, LaTeX, MATLAB, Mathematica |