Georges Hattab

Curriculum Vitae

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Nationality: French. Born 2nd Sep. 1988

Degrees

2018 **PhD (Dr. rer. nat.), Bioimage Informatics, Bioinformatics**,
Faculty of Technology, Bielefeld University, Bielefeld, Germany.

2014 **Master of Science, Technology, Healthcare, Bioinformatics**,
Université Paris VII, Denis Diderot, Université Sorbonne Paris Cité, Paris, France.

2012 **Bachelor of Science, Technology, Healthcare, Bioinformatics**,
Université Paris VII, Denis Diderot, Université Sorbonne Paris Cité, Paris, France.

Education & Development

2019–2021 **Lecturer and junior group leader**, *Philipps-Universität Marburg, Department of Mathematics and Computer Science, Molecular Storage for Long term Archiving (MOSLA)*, Marburg, Germany.
Developing automatic workflows and visualizations for information storage systems that rely on biological and chemical compounds

2019–2021 **Head of division**, *Philipps-Universität Marburg, Department of Mathematics and Computer Science, Division of Bioinformatics*, Marburg, Germany.
Machine learning and bioinformatics for Omics data. Advised by Prof. Dominik Heider

2018–2019 **Postdoc**, *National Center for Tumor Diseases (NCT), German Cancer Research Center (DKFZ), Division of Translational Surgical Oncology, University Hospital Carl Gustav Carus, Technical University*, Dresden, Germany.
Biomechanical analysis and computer vision for augmented reality of the kidney organ in the field of computer- and robot-assisted surgery. Supervised by Prof. Stefanie Speidel

2014–2017 **PhD**, *Bielefeld University, Biodata Mining Group, Computational Methods for the Analysis of the Diversity and Dynamics of Genomes, German-Canadian DFG Int. Research Training Group*, Bielefeld, Germany.
Analyzing colony dynamics and visualizing cell diversity in spatiotemporal experiments. Supervised by Prof. Tim W. Nattkemper and Prof. Tamara Munzner

2016 **Visiting Grad student**, *University of British Columbia (UBC), InfoVis Group*, Vancouver, BC, Canada.
Development of an efficient algorithm and data abstractions to analyze bacterial colony growth in time-lapse image data. Supervised by Prof. Tamara Munzner

2014 **Master**, *Laboratory of Evolution, Genomes and Speciation (LEGS), CNRS UPR 9034*, Gif-sur-Yvette, France.
Detection and analysis of trajectory patterns of *Drosophila melanogaster* in a spatial system based on the Morris water maze. Supervised by Dr. Frederic Mery

2013 **Internship**, *Institute of Biological Physical Chemistry (IBPC), CNRS UMR 7099*, Paris, France.
Proteome and metabolome study of the bacterium strain C43(DE3) throughout membrane proliferation in *Escherichia coli*. Supervised by Prof. Bruno Miroux

2013 **Research assistant**, *Necker-Enfants Malades Hospital, Necker Proteomics (PPN), Paris Descartes University, Inserm US 24 CNRS UMS 3633*, Paris, France.
Software deployment and data mining for label-free proteomics. Supervised by Dr. Chiara Guerrera

2012 **Bachelor**, *Institute of Biological Physical Chemistry (IBPC), CNRS UMR 7099*, Paris, France.
Establishment of a bibliographic and bioinformatics mining tool to research the over-expression of heterologous membrane proteins. Supervised by Prof. Bruno Miroux

2010 **Internship**, *Institute Jacques Monod (IJM), CNRS UMR 7592*, Paris, France.
Gene expression profiling and database creation to assess genetic regulations in iron homeostasis in *Saccharomyces cerevisiae*. Supervised by Dr. Denis Mestivier.

Further Experience

2021 **Workshop** 'Evidence-Based Approaches to Improve Your Teaching – Designing Assessments.' D. Meredith, P. Soto. The Biophysical Society

2020 **Workshop** on DNA, polymers and big data from the Transdisciplinary Technology and Health Meetings, 'Colloque ADN, polymères et big data.' CNRS and Académie des Technologies. Paris, France

2019 **Workshop** 'Computational Pan-Genomics.' Center for Interdisciplinary Research. J. Stoye, A. Schönhuth. Bielefeld, Germany

2019 **Workshop** 'Perceptual Capacities and Constraints in AR/VR for the visualization of 3D biomedical image data.' Computer Assisted Radiology and Surgery (CARS). R. Eagleson, U. Eck, G. Hattab, B. Preim. Rennes, France

2019 **Workshop** 'Surgical Data Science.' Le Couvent des Jacobins Center. L. Maier-Hein, P. Jannin, S. Speidel. Rennes, France

2017 **Springer Cover design** for 'Comparative Genomics: Methods and Protocols.' Stoye et al. 2017

2016 **Workshop** 'Algorithms for Comparative Genomics.' C. Chauve, J. Stoye. Simon Fraser University. Burnaby, Canada

2016 **Workshop** 'Academic Writing in Natural Sciences.' M. Gould. Bielefeld University. Bielefeld, Germany

2015–2016 **Student Representative** of the graduate school 'Computational Methods for the Analysis of the Diversity and Dynamics of Genomes.'

2015 **Workshop** 'Intense Course on Data Mining and Visualization'. M. Ester, T.W. Nattkemper, and B. Hammer

2015 **Workshop** 'Intense Course on Cancer Genomics.' R. Morin, Y. Wang, A. Cherkasov, S. Volik, R Brinkman, A. Wyatt, S. Shah, and A. Bouchard. Simon Fraser University. Burnaby, Canada

2015 **Workshop** '13th Bioinformatics Research and Education Workshop (BREW).' University of Tartu. Tartu, Estonia

2015 **Workshop** 'Biodata Visualization and Subcellular localization'. W. Duddy, J. Krüger, S. Müller, and T. Wallmeyer. University of Bielefeld. Bielefeld, Germany

2014 **Volunteer curator** for the United Nations Development Programme (UNDP). Lead curator and book designer for an international collaborative publication: Reversality

2012 **Volunteer curator** for the United Nations Children's Fund, UNICEF France. Lead curator and organizer for an international exhibition at PLÂTRE émoi. Paris, France

2011–2014 **Volunteer rescuer** at the French Red Cross (Croix-Rouge Française). Paris, France.

Selected publications

2021 **Wagner D, Heider D, Hattab, G**, *Mushroom data creation, curation, and simulation to support classification tasks*, Scientific Reports, Nature.

2020 **Hattab G, Rhyne TM, Heider, D**, *Ten simple rules to colorize biological data visualization*, PLOS Computational Biology.

2020 **Hattab G, Koepp A, Ahlfeld T, Klimova A, Schuerer M, Speidel S**, *Uniaxial Compression testing and Cauchy stress modeling to design anatomical silicone replicas* , Scientific Reports, Nature.

2020 **Hattab G, Meyer F, Remke D A, Speidel S**, *MODELAR: A MODular and EvaLuative framework to improve surgical Augmented Reality visualization*, EuroVis 2020 - Short Papers, The Eurographics Association.

2020 **Hattab G, Arnold M, Strenger L, Allan M, Arsentjeva D, Simpfendoerfer T, Maier-Hein L, Speidel S**, *Kidney edge detection in laparoscopic image data for computer-assisted surgery*, Springer Nature, The International Journal for Computer Assisted Radiology and Surgery.

2018 **Hattab G, Nattkemper TW**, *SeeVis–3D space-time cube rendering for visualization of microfluidics image data*, Bioinformatics.

2018 **Hattab G, Wiesmann V, Becker A, Munzner T, Nattkemper TW**, *A novel methodology for characterizing cell subpopulations in automated time-lapse microscopy*, Frontiers in bioengineering and biotechnology.

2015 **Hattab G, Warschawski DE, Moncoq K, Miroux B**, *Escherichia coli as host for membrane protein structure determination: A global analysis*, Scientific reports, Nature.

Selected conferences

2020 IEEE Visualization Conference (VIS). Salt Lake City, Utah, USA. (virtual attendee)

2020 The 28th German Conference on Bioinformatics (GCB). Frankfurt, Germany (co-author two papers in proceedings)

2020 Eurographics & Eurovis (EGEV) 2020. Norrköpping, SE (paper in proceedings)

2019 The 33rd International Conference on Computer Assisted Radiology and Surgery (CARS). Rennes, FR (workshop talk and co-organizer)

2018 The 9th International Conference on Information Processing in Computer-Assisted Interventions (IPCAI). Berlin, DE (event assistant)

2016 IEEE Visualization Conference (VIS). Baltimore, MD, USA (attendee)

2016 Information+ conference. Emily Carr University. Vancouver, BC, CA (highlight talk and exhibition)

2015 The 7th Gender summit (GS7): Mastering gender in research performance, contexts, and outcomes. Berlin, DE (attendee)

2015 Membrane Protein Structures 2015 Meeting (MPS): Advance Photon Source. Argonne National Laboratory. Lemont, IL, USA (abstract in proceedings)

2014 The 22nd German Conference on Bioinformatics (GCB). Bielefeld, DE (attendee)

2014 DYNAMO Labex Symposium: Evolution, biogenesis and dynamics of energy transducing membranes. Oceanographic Institute. Paris, FR (poster)

2014 Biophysical Society: 58th Annual Meeting. Biophys J 106 (2, Suppl 1): 46a. San Francisco, CA, USA. (poster and abstract in proceedings)

2013 Bioenergetics: Gordon Research Conferences. Proctor Academy. Andover, NH, USA (highlight talk).

Invited talks

2021 **Colloquium** 'Hidden Data Facets in Bioinformatics.' Colloquium for Bioinformatics and Systems Biology. (KoBiS) Kolloquium für Bioinformatik und Systembiologie Mittelhessen. University of Applied Sciences Middle Hesse. Giessen, Germany

2019 **Lecture** 'Visual Computing.' Institute of Simulation and Graphics (ISG), Otto von Guericke University Magdeburg. H. Theisel, B. Preim. Magdeburg, Germany

2019 **Workshop** '9th Summer School Surgical Robotics.' Laboratory of Computer Science, Robotics and Microelectronics Laboratory of Computer Science, Robotics and Microelectronics (LIRMM), CNRS. P. Poignet, N. Zemiti. Montpellier, France.

Teaching

2020-2021 **Lecture** Data Visualization. Bilingual (EN/DE). Department of Mathematics and Computer Science, University of Marburg. Marburg, Germany. Three consecutive semesters (3 SEM)

2020-2021 **Seminar** Biological Data Visualization. Department of Mathematics and Computer Science, University of Marburg. Marburg, Germany. 2 SEM

2021 **Seminar** Information Theory Tools for Visual Computing. Department of Mathematics and Computer Science, University of Marburg. Marburg, Germany. 1 SEM

2019 **Workshop** 'Perceptual Capacities and Constraints in AR/VR for the visualization of 3D biomedical image data.' Computer Assisted Radiology and Surgery (CARS). R. Eagleson, U. Eck, G. Hattab, B. Preim. Rennes, France

2015–2016 **Seminar** 'Visualization approaches for biological data (BioVITAL).' Faculty of Technology, Bielefeld University. Bielefeld, Germany. 2 SEM.

Refereeing Services and Scientific Committees

Reviewer:

2014–2021 *Oxford Bioinformatics, BMC Bioinformatics, BMC Biodata Mining, PLOS Computational Biology, Springer Science Information China, Elsevier Computational Science.*

Board Member:

2019–2021 *Nightingale* The Data Visualization Society (Editorial).

2020-2021 *Department of Mathematics and Computer Science*. Philipps-Universität Marburg (Faculty).

Funding

2020-2021 **Center for Interdisciplinary Research**, *Zentrum für interdisziplinäre Forschung (ZiF)*, the 1th International Conference on Data Storage in Molecular Media (DSMM), Bielefeld, Germany, (funding awarded to organize the conference).

2019 **Intuitive Surgical Inc.**, *CARS Conference*, Rennes, France, (sponsorship awarded for the AR/VR 3D biomedical image data visualization workshop).

Awards

2017–2018 **Jump-start position**, *Bielefeld University, DFG GRK 1906*, Bielefeld, Germany, Funded position awarded to transition from a PhD to a Postdoc.

Skills & Competences

Programming & Scripting Python, Perl, C, C++, Mathematica, MATLAB, PL/PGSQL, PostgreSQL, xHTML, PHP, Javascript, R, LaTeX, ConTeXt

Other Data Mining, Computer Vision, Visualization, Unix

Languages

French	**native speaker**	–
English	**near native**	*CEFR (C2)*
German	**very good command**	*CEFR (B2)*
Arabic	**good command**	*CEFR (B1)*

References

Prof. Dr. Dominik Heider	dominik.heider@uni-marburg.de
Theresa-Marie Rhyne	theresamarierhyne@gmail.com
Prof. Dr. Ing. Tim W. Nattkemper	tim.nattkemper@uni-bielefeld.de
Prof. Dr. Tamara Munzner	tmm@cs.ubc.ca
Dr. Roland Wittler	roland.wittler@uni-bielefeld.de
Prof. Dr. Bruno Miroux	bruno.miroux@ibpc.fr