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

2019–2020 **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.

2019–2020 **Head of division**, *Philipps-Universität Marburg, Department of Mathematics and Computer Science, Division of Bioinformatics*, Marburg, Germany.
Machine learning and computational biology for omics data. Advised by Prof. Dr.-Ing 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 of soft tissue registration and computer vision for augmented reality in the field of computer- and robot-assisted surgery. Supervised by Prof. Dr.-Ing 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 apl. Prof. Dr.-Ing. Tim W. Nattkemper and Prof. Dr. Tamara Munzner

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

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

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

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 design for an international collaborative publication: Reversality

2012 **Volunteer curator** at 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

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 Data, Nature Research (in review).

2020 **Hattab G, Meyer F, Remke D A, Speidel S**,
MODELAR: A MODular and EvaLuative framework to improve surgical Augmented Reality visualization, EuroVis 2020, IEEE TVCG, Transactions on Visualization and Computer Graphics.

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 IJCARS, 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.
doi: 10.1093/bioinformatics/bty889

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., 6:17.
doi: 10.3389/fbioe.2018.00017

2017 **Hattab G, Schlueter JP, Becker A, Nattkemper TW**,
Vicar: an adaptive and landmark-free registration of time lapse image data from microfluidics experiments, Frontiers in genetics, 8:69.
doi:10.3389/fgene.2017.00069

2015 **Hattab G, Warschawski DE, Moncoq K, Miroux B**,
Escherichia coli as host for membrane protein structure determination: A global analysis, Scientific reports, 5:12097.
doi: 10.1038/srep12097

2014 **Hattab G, Suisse AY, Ilioaia O, Casiraghi M, Dezi M, Warnet XL, Warschawski DE, Moncoq K, Zoonens M, Miroux B**,
Membrane protein production in Escherichia coli : Overview and protocols, Membrane Proteins Production for Structural Analysis, Cell Biology, Springer, 87–106.
doi: 10.1007/978-1-4939-0662-8_4

Selected conferences

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 7^{th} 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 DYNAMO Labex Symposium: Evolution, biogenesis and dynamics of energy transducing membranes. House of the Oceans - Oceanographic Institute. Paris, FR (poster)

2014 Biophysical Society: 58^{th} 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

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

2019 **Workshop** '9^{th} 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, Germany

Teaching

2020 **Lecture** Data visualization. Summer semester 2020. Department of Mathematics and Computer Science, University of Marburg. Marburg, 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

Refereeing Services and Scientific Committees

Reviewer:

2014–2020 *Bioinformatics, BMC Bioinformatics, BMC Biodata Mining, PLOS One, Science Information China Springer, etc.*

Board Member:

2019–2020 *Nightingale* The Data Visualization Society (Editorial).

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

Sponsors

2019 **Intuitive Surgical Inc.**, *CARS*, 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**
Arabic **good command**
German **good command** *UNIcert® level A2*

References

Prof. Dr. Ing. Stefanie Speidel	stefanie.speidel@nct-dresden.de
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