

# Georges Hattab

## Curriculum Vitae

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📄 [ghattab.github.io](https://ghattab.github.io)



Nationality: French. Born 2<sup>nd</sup> 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 (UBC), 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 Guerrero.
- 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

- 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 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

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### Selected publications

- 2020 **Hattab G, Rhyne TM., Heider, D**, *Ten simple rules to colorize biological data visualization*, PLOS Computational Biology, 10.1371/JOURNAL.PCBI.1008259.
- 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 Research, 10.1038/S41598-020-68886-3.
- 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, 10.2312/evs.20201066.
- 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, 10.1007/s11548-019-02102-0.
- 2018 **Hattab G, Nattkemper TW**, *SeeVis-3D space-time cube rendering for visualization of microfluidics image data*, Bioinformatics, 10.1093/bioinformatics/bty889.
- 2015 **Hattab G, Warschawski DE, Moncoq K, Miroux B**, *Escherichia coli as host for membrane protein structure determination: A global analysis*, Scientific reports, 10.1038/srep12097.
- 2014 **Hattab G, Suisse AY, Iliaia 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

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### Selected conferences

- 2020 IEEE Visualization Conference (VIS). 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, Germany (attendee)
- 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<sup>th</sup> 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<sup>th</sup> 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

- 2020-2021 **Lecture** Data Visualization. Summer and winter semesters. Department of Mathematics and Computer Science, University of Marburg. Marburg, Germany
- 2020-2021 **Seminar** Biological Data Visualization. WS 2020-2021. 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
- 2015-2016 **Seminar** 'Visualization approaches for biological data (BioVITAL).' Faculty of Technology, Bielefeld University. Bielefeld, Germany.

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## Refereeing Services and Scientific Committees

Reviewer:

2014–2020 *Bioinformatics, BMC Bioinformatics, BMC Biodata Mining, PLOS Computational Biology, 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).

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## Sponsors

2019 **Intuitive Surgical Inc.**, CARS, Rennes, France.

Sponsorship awarded for the AR/VR 3D biomedical image data visualization workshop.

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## Awards

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

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## Skills & Competences

**Programming & Scripting** Python, Perl, C, C++, Mathematica, MATLAB, PL/PGSQL, PostgreSQL, xHTML, PHP, Javascript, R,  $\text{\LaTeX}$ , ConTeXt

**Other** Data Mining, Computer Vision, Visualization, Unix

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## Languages

French **native speaker**

English **near native**

Arabic **good command**

German **good command**

*UNlcert<sup>®</sup> level A2*

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## References

Prof. Dr. Ing. Stefanie Speidel

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Prof. Dr. Ing. Tim W. Nattkemper

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Prof. Dr. Tamara Munzner

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Dr. Roland Wittler

roland.wittler@uni-bielefeld.de

Prof. Dr. Bruno Miroux

bruno.miroux@ibpc.fr