Laura Garrison

PhD candidate, Visualization group
Institute for Informatics, University of Bergen, Norway

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Main Interests

Data visualization and visual analytics (with focus on medical/biological data), UI/UX design, scientific communication

Selected Professional Experience

- *2018 - present*. Researcher (PhD candidate) for Visual Data Science for Large Scale Hypothesis Management in Imaging Biomarker Discovery (VIDI) Project. Employed through University of Bergen and the Mohn Medical Imaging and Visualization (MMIV) Centre. Includes 25% administrative and teaching-related duties for INF 100 (Introduction to Programming), INF 101 (Object-oriented programming), and INF 102 (Algorithms)
- *2016 - 18*. Scientific Technical Director. BioDigital, New York, NY. Led and managed the scientific team for the development of novel, interactive 3D experiences for the web.
- *2013 - 15*. Director of Medical Media. i-Human Patients, Sunnyvale, CA. Managed the acquisition, creation, and management of medical and scientific imagery from variety of data sources for use in virtual patient case scenarios.
- *2013 - 14*. Production Artist. Emmi Solutions, Chicago, IL. Member of production art team to build visual stories for patient education modules in Adobe Flash.
- *2012.* Medical illustration Intern. Journal of the American Medical Association, Chicago, IL. Internship in Graphic Production Unit to produce medical illustrations accompanying JAMA articles.
- *2010-12.* Graduate/Teaching Assistant, Dept. of Medical Education, Dept. of Biology and College of Liberal Arts and Sciences Dean's Office, University of Illinois at Chicago, Chicago, IL. Run lecture/lab sessions in BIOS 101 (Populations and Communities). Design promotional graphics and layouts for UIC Department of Medical Education and College of Liberal Arts and Sciences.
- *2009.* Biological Illustration Intern, California Academy of Sciences, San Francisco, CA. Collaborate with facility research staff to create series of digital illustrations of marine invertebrates.

Education

- *2018 - present*. PhD Candidate in Medical Visualization. University of Bergen, Norway. Topic: Designing task-based experiences for the visualization and visual analysis of physiological processes. Advisors: Dr. Stefan Bruckner, Dr. Renate Grüner

- *2010 - 12.* MS in Biomedical Visualization. University of Illinois at Chicago, IL. Topic: Visualizing Stonefish Envenomation and its Effects On the Human Cardiovascular System.
- *2005 - 09.* BA in Biology, Full Honors. Northern Michigan University, MI. Focus in Anatomy and Physiology; Art and Chemistry minors.

Awards

- Melzer Grant. University of Bergen 2020
- Best Poster Award. 2019 EuroVis Conference, Porto, Portugal
- Best Student Entry. Graphics Media. 2012 BioImages Annual Media Exhibition BioCommunications Association.
- Award of Excellence - Natural Science Illustration. 2012 BioImages Annual Media Exhibition. BioCommunications Association.
- Chancellor's Student Service Award. University of Illinois Chicago 2012
- Finalist in Image of Research Competition. University of Illinois Chicago 2012
- 1st place group poster. 2009 Student Celebration of Research and Creative works. Northern Michigan University
- Winner of design competition for 2009 U.P. 200 Dog Races logo, Marquette, MI.
- Benjamin A. Gilman Scholarship. Northern Michigan University 2007

Invited Talks & Presentations

- **Upcoming** Visualization and Communication. BioMedSpring 17-21 May 2021.
- Hierarchical Visual Exploration of Clinical Cohort Data. MMIV Conference 2020: Enabling Imaging Technology to Transform Patient Care, Mohn Medical Imaging and Visualization Center, Norway, Dec. 10, 2020.
- Visual Data Science for Medicine. MMIV Seminar Series, Mohn Medical Imaging and Visualization Center, Norway, Feb. 20, 2020.
- Visual Imaging Biomarker Discovery for Neuroscience. MMIV Conference 2019: Convergence of Medical Data Science for Improved Patient Care, Mohn Medical Imaging and Visualization Center, Norway, Dec.10, 2019.
- A Visual Encoding System for Comparative Exploration of Magnetic Resonance Spectroscopy Data, MMIV Conference 2019: Convergence of Medical Data Science for Improved Patient Care - Posters, Mohn Medical Imaging and Visualization Center, Norway, Dec. 9-11, 2019.
- SpectraMosaic: An Exploratory Tool for the Interactive Visual Analysis of Magnetic Resonance Spectroscopy Data. ICT Research School, University of Bergen, Norway, Nov.1, 2019.
- SpectraMosaic: An Exploratory Tool for the Interactive Visual Analysis of Magnetic Resonance Spectroscopy Data. VCBM 19: Eurographics Workshop on Visual Computing for Biology and Medicine, Brno, Czech Republic, Sep. 4-6, 2019.

- An Exploratory Tool for the Interactive Visual Analysis of Magnetic Resonance Spectroscopy Data. Department of Neurology, Otto-von-Guericke University, Magdeburg, Germany. Aug. 6, 2019.
- A Visual Encoding System for Comparative Exploration of Magnetic Resonance Spectroscopy Data. 21st Eurographics Conference on Visualization, EuroVis 2019 - Posters, Porto, Portugal, Jun. 3-7, 2019.
- The BioDigital Human, Visual Computing Forum, Institute for Informatics, University of Bergen, Norway, Dec. 14, 2018.

Other Professional Activities

- Board Member. Vesalius Trust for Visual Communication in the Health Sciences. 2017 - present.
- Certified Medical Illustrator. Commission on Accreditation of Allied Health Education Programs. 2015 - present.
- Student Member. IEEE. 2018-present.
- Student Member. EuroGraphics 2018-present.
- IEEE TVCG External Reviewer. 2020-present
- EuroGraphics CGF External Reviewer. 2020-present
- Guest Researcher. Otto von-Guericke University Magdeburg, Germany. MedDigit research group. July 2019.
- President of Student Association of Medical Illustrators, University of Illinois at Chicago 2011-12

Scientific Publications

- **L. Garrison**, J. Müller, S. Schreiber, S. Oeltze-Jafra, H. Hauser, and S. Bruckner, "DimLift: Interactive Hierarchical Data Exploration through Dimensional Bundling," Accepted to appear in upcoming issue of IEEE Transactions on Visualization and Computer Graphics, 2021. *doi: 10.1109/TVCG.2021.3057519*
- J. Müller, **L. Garrison**, P. Ulbrich, S. Schreiber, S. Bruckner, H. Hauser, and S. Oeltze-Jafra, "Integrated Dual Analysis of Quantitative and Qualitative High-Dimensional Data," Accepted to appear in upcoming issue of IEEE Transactions on Visualization and Computer Graphics, 2021. *doi: 10.1109/TVCG.2021.3056424*
- **L. Garrison**, J. Vašíček, A. R. Craven, R. Grüner, N. Smit, and S. Bruckner, “Interactive Visual Exploration of Metabolite Ratios in MR Spectroscopy Studies,” Computers & Graphics, vol. 92, p. 1–12, 2020. *doi: 10.1016/j.cag.2020.08.001*
- H. Bartsch, **L. Garrison**, S. Bruckner, A. Wang, S. F. Tapert, and R. Grüner, “MedUse: A Visual Analysis Tool for Medication Use Data in the ABCD Study,” in Proceedings of VCBM 2019 (Short Papers), 2019, p. 97–101. *doi*: *10.2312/vcbm.20191236*

- **L. Garrison**, J. Vašíček, R. Grüner, N. Smit, and S. Bruckner, "SpectraMosaic: An Exploratory Tool for the Interactive Visual Analysis of Magnetic Resonance Spectroscopy Data," in Proceedings of VCBM 2019, 2019, p. 1–10. *doi: 10.2312/vcbm.20191225*
- **L. Garrison**, J. Vašíček, R. Grüner, N. Smit, and S. Bruckner, A Visual Encoding System for Comparative Exploration of Magnetic Resonance Spectroscopy Data, 2019. Poster presented at the EuroVis conference 2019. *Best Poster Award*.