Devin Lange

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Education

Post-Doctoral Training, Harvard Medical School 2024 – Present

Postdoctoral research fellow in biomedical informatics with Dr. Nils Gehlenborg
Research Focus: Integration of AI with interactive visualization systems for biomedical discovery.

PhD in Computer Science, University of Utah 2019 – 2024

PhD in computer science with Dr. Alexander Lex

BS in Computer Science, University of Minnesota 2012 – 2016

Major in computer science with minor in mathematics, *summa cum laude*

Awards and Honors

Best Paper Award, IEEE VIS, for the *Aardvark* paper (top 5 paper out of 557 submissions) 2024

Honorable Mention Award, IEEE VIS, for the *Loon* paper (top 20 paper out of 445 submissions) 2021

Best Abstract Honorable Mention, ISMB BioVis, for the *Loon* abstract 2021

Shane Robison Fellowship, University of Utah 2019

Presidential Scholarship, University of Minnesota 2012

Publications

1. **Devin Lange**, Robert Judson-Torres, Thomas A. Zangle, Alexander Lex, *Aardvark: Composite Visualizations of Trees, Time-Series, and Images.* IEEE Transactions on Visualization and Computer Graphics (VIS), 2024, https://doi.org/10.1109/TVCG.2024.3456193.
   Best Paper Award · vdl.sci.utah.edu/publications/2024_vis_aardvark

2. **Devin Lange**, Shaurya Sahai, Jeff M. Phillips, Alexander Lex, *Ferret: Reviewing Tabular Datasets for Manipulation.* Computer Graphics Forum (EuroVis), vol. 42, no. 3, pp. 187–198, 2023, https://doi.org/10.1111/cgf.14822.
   ferret.sci.utah.edu · github.com/visdesignlab/Ferret

3. Derya Akbaba, **Devin Lange**, Michael Correll, Alexander Lex, Miriah Meyer, *Troubling Collaboration: Matters of Care for Visualization Design Study.* SIGCHI Conference on Human Factors in Computing Systems (CHI), no. 812, pp. 1–15, 2023, https://doi.org/10.1145/3544548.3581168.

4. **Devin Lange**, Eddie Polanco, Robert Judson-Torres, Thomas Zangle, Alexander Lex, *Loon: Using Exemplars to Visualize Large-Scale Microscopy Data.* IEEE Transactions on Visualization and Computer Graphics (VIS), vol. 28, no. 1, pp. 248–258, 2022, https://doi.org/10.1109/TVCG.2021.3114766.
   Honorable Mention Award · loon.sci.utah.edu · github.com/visdesignlab/Loon

5. **Devin Lange**, Francesca Samsel, Ioannis Karamouzas, Stephen J. Guy, Rodney Dockter, Timothy M. Kowalewski, Daniel F. Keefe, *Trajectory Mapper: Interactive Widgets and Artist-Designed Encodings for Visualizing Multivariate Trajectory Data.* In Proceedings of EuroVis Conference (Short Papers), pp. 103–107, 2017, https://doi.org/10.2312/eurovisshort.20171141.

6. Jose Guillermo Rangel Ramirez, **Devin Lange**, Panayiotis Charalambous, Claudia Esteves and Julien Pettré, *Optimization-based computation of locomotion trajectories for Crowd Patches.* In Proceedings of the Seventh International Conference on Motion in Games, pp. 7–16, 2014, http://doi.org/10.1145/2668064.2668094.

Preprints

1. **Devin Lange**, Pengwei Sui, Shanghua Gao, Marinka Zitnik, Nils Gehlenborg, *DQVis Dataset: Natural Language to Biomedical Visualization.* Under review at NeurIPS 2025, https://doi.org/10.31219/osf.io/rqb7u_v1.
   github.com/hms-dbmi/DQVis-Generation

2. **Devin Lange** *VisPubs: A Visualization Publications Repository.* https://doi.org/10.31219/osf.io/dg3p2.
   vispubs.com · github.com/Dev-Lan/vispubs

3. **Devin Lange**, *Bidirectional interconversion between mutually exclusive tumorigenic and drug-tolerant melanoma cell phenotypes.* Under review, https://doi.org/10.1101/2020.08.26.269126.

Dissertation

1. **Devin Lange** *Is that Right? Data Visualizations for Scientific Quality Control.* University of Utah, 2024

Professional Appointments

Postdoctoral Fellow, Harvard Medical School 2024 – present

HIDIVE Lab | PI: Dr. Nils Gehlenborg

- Developed visualization grammar for biomedical metadata visualizations.
- Constructed training dataset of natural language queries to visualization grammar specifications.
- Fine-tuned Large Language Model to generate biomedical visualization specifications.
- Developed visualization system that integrates fine-tuned model with interactive multi-view visualizations.

Postdoctoral Fellow at the Visualization Design Lab, University of Utah 2024 – present

Research Assistant at the Visualization Design Lab, University of Utah 2020 – 2024

Visualization Design Lab | PI: Dr. Alexander Lex

- Designed and developed cell microscopy visualization systems.
- Designed and developed a visualization system for data forensics.

Graduate Research Intern, Ozette Technologies May 2023 – August 2023

- Developed prototype to visualize aggregate matrices of cell phenotype abundance.

Software Developer, Epic Systems Corporation, Wisconsin 2016 – 2019

- Lead Developer on a 10,000+ hour project to create a tool for reviewing medical result data.
- Organized brain trust to get input from physician leads across many organizations.
- Created and taught learnToCode advanced class after hours to coworkers.

Research Assistant, University of Minnesota 2015 – 2016

Interactive Visualization Lab | PI: Dr. Daniel Keefe

- Developed an open-source application in C++ for viewing and analyzing multivariate trajectory data.
- Created framework to aid in the development of future linking and brushing applications.

Research Assistant at INRIA, France Summer of 2014

INRIA | PI: Dr. Julian Pettré

- Created and implemented an algorithm to compute locomotion trajectories for the Crowd Patches project.
- Created visualization for video, diagrams, and assisted with paper for publication

Research Assistant, University of Minnesota Summer of 2013

Applied Motion Lab | PI: Dr. Stephen J. Guy

- Created pipeline to perform offline rendering of crowd simulations using Python and Mitsuba.
- Developed a motion control system for quadcopters in Python.

Teaching

CS 2420 — Introduction to Data Structures and Algorithms, University of Utah, Summer 2022
Instructor. Undergraduate course on fundamentals of computer science.

CS 3500 — Software Practice, University of Utah, Fall 2021
Guest Lecturer. Undergraduate course on fundamentals of software engineering.

COMP 5360/MATH 4100 — Introduction to Data Science, University of Utah, Spring 2021
Teaching Assistant. Undergraduate course on data science.

CS 5630/CS 6630 — Visualization, University of Utah, Fall 2020
Teaching Assistant. Graduate/undergraduate course on visualization.

CSCI 1901H — Honors Intro to Computer Science, University of Minnesota, Fall 2013
Teaching Assistant. Undergraduate course on introductory computer science concepts.

Presentations

Aardvark: Composite Visualizations of Trees, Time-Series, and Images

- Paper Talk, IEEE VIS, Virtual, October 15, 2024
- Invited Talk, BioVis at ISCB, Montreal, Canada, July 14, 2024

Is that right? Visualizations for scientific data quality control

- PhD Defense, University of Utah, Salt Lake City, UT, July 29, 2024
- Invited Talk, Visual Computing Group, School of Engineering and Applied Sciences, Harvard, (virtual), March 22, 2024
- Invited Talk, HIDIVE Lab, Department of Biomedical Informatics, Harvard Medical School, Boston, MA, May 3, 2024
- Invited Talk, Datavisyn Scientific Talk Series, (virtual), November 16, 2023
- Invited Guest Lecture, The University of Oklahoma, (virtual), March 13, 2024

Aggregate Annotated Single-Cell Heatmap Visualizations

- Invited Talk, BioVis at ISCB, Montreal, Canada, July 14, 2024

Ferret: Reviewing Tabular Datasets for Manipulation

- Paper Talk, EuroVis 2023, Leipzig, Germany, June 14, 2023

Loon: Using Exemplars to Visualize Large-Scale Microscopy Data

- Invited Talk, Cancer Cell Plasticity Research Collaboration Group, Huntsman Cancer Institute, University of Utah, Salt Lake City, UT, November 15, 2023
- Invited Talk, Dagstuhl Seminar, Schloss Dagstuhl, Germany, November 8, 2023
- Invited Talk, Phase Holographic Imaging, Salt Lake City, UT, November 3, 2023
- Invited Talk, Visualization and Image Data Management, Harvard VCG, Harvard Medical School, and others, (virtual), January 13, 2023
- Paper Talk, IEEE VIS, Virtual, October 29, 2021
- Invited Talk, BioVis at ISCB, Virtual, July 27, 2021
- Invited Talk, Department of Biomedical Informatics, Harvard Medical School, Boston, MA, (virtual) May 12, 2021

Visualization of Complex Data

- Invited Talk, MCBIOS, Salt Lake City, UT, March 28, 2025

Trajectory Mapper: Interactive Widgets and Artist-Designed Encodings for Visualizing Multivariate Trajectory Data

- Paper Talk, EuroVis, Barcelona, Spain, June 2017
- Undergraduate Honors Defense, Department of Computer Science, University of Minnesota, Minneapolis, MN, May, 2016

</> Technical Skills

Full Stack Development: TypeScript, JavaScript, Vue, D3, SASS, Vega-Lite, Python, C#, C++
Design Software: Adobe Photoshop, Adobe Illustrator, Adobe Premiere

★ Service

Conference Service

IEEE VIS Open Practices Co-Chair	2025

Program Committee

IEEE Visualization Short Papers	2025
IEEE Visualization VisComm	2025

Reviewing

IEEE Visualization	2025
IEEE TVCG	2025
IEEE Visualization	2024
IEEE Visualization	2023
IEEE TVCG	2021

Student Positions

College of Engineering College Council Representative, University of Utah	2021 – 2024
Communication Coordinator of Graduate Student Advisory Committee, University of Utah	2021 – 2022
President of Graduate Student Advisory Committee, University of Utah	2020 – 2021