

Thomas Chris Smits

tsmits@hms.harvard.edu ▪ [LinkedIn](#) ▪ [GitHub](#)

Passionate **bioinformatics** graduate with a focus on developing analysis tools and data visualization, especially in the realms of **genomic and spatial data**. I am eager to leverage my **Python, JavaScript/TypeScript, and R** skills to bring innovative and insightful solutions to complex biological datasets.

Education

Master of Biomedical Informatics

Aug. 2021 – March 2023

Harvard Medical School

- Relevant coursework: Genomic Data Manipulation, Deep Learning for Biomedical Data, Cancer Genome Data Science, Biomedical Data Visualization, Biological Systems Modeling [MIT]

Transfer program in Computer Science

Sept. 2020 – Aug. 2021

Delft University of Technology

- Relevant coursework: Object-Oriented Programming, Logic, Algorithms, Web- and Database Structures, and Microservices Software Engineering

Bachelor of Science in Life Science & Technology (*Honors & Summa cum Laude*)

Sept. 2017 – Aug. 2020

Delft University of Technology & Leiden University (joint degree)

- Relevant coursework: Bioinformatics, Life Sciences, Calculus, Statistics
- Honors program Beta & Life Sciences at *Leiden University* with relevant coursework in computer science
- Study abroad at the *University of British Columbia* with relevant coursework in computational neurobiology

Relevant work experience

Associate in Biomedical Informatics

February 2023 – present

Harvard Medical School

- Department of Biomedical Informatics, HiDIVE Lab, under Dr. Nils Gehlenborg
- Key projects:
 - Accessibility of genome-mapped data visualization
 - Cell composition visualization
 - Integrated analyses in the HuBMAP consortium Data Portal
- Mentored intern from HuBMAP Underrepresented Student Internship program (2023) and intern from Summer Institute in Biomedical Informatics 2024

Graduate Student Researcher

Harvard Medical School

March 2022 – December 2023

- Department of Biomedical Informatics, HiDIVE Lab, under Dr. Nils Gehlenborg
- Key project: Development of automatic feature extraction in JavaScript for written descriptions of visualization in grammar-based genomic visualization tool Gosling

Dana-Farber Cancer Institute

Nov. 2021 – December 2022

- Department of Data Science, multiple myeloma genomics lab, under Dr. Mehmet Samur
- Investigation into (epi)genetic modifications of multiple myeloma
- Key projects:
 - Investigating the role of somatic processes and mutational burdens around hyperdiploidy in multiple myeloma with WGS
 - Investigation of the role of PHF19 on chromatin accessibility with ChIP-seq
 - Investigation of the role of BCL7A with ATAC-seq
 - Investigation of RNAs associated with proteasomes with CLIP-seq and RNAs-seq

Undergraduate Researcher

April – Aug. 2020

Delft Bioinformatics Lab

- Under dr. Thomas Abeel and dr. ir. Robert Mans
- Key project: Developing various models in Python for prediction of potential hosts of SARS-CoV-2 by analyzing ACE2 receptor sequences

Teaching Assistant

Harvard Medical School

March – May 2023

- **Teaching assistant** for Deep Learning for Biomedical Data for Master in Biomedical Informatics program in a classroom setting for 50 students.
- **Teaching assistant** for Computationally-Enabled Medicine for Doctor of Medicine program, guiding 20 third-year medical students in a group setting.

Delft University of Technology

Jan. – April 2021

- **Teaching assistant** for Biotechnology in Bachelor program Life Science & Technology. Provided set-up of course for 200 students and assisted during biweekly seminars.

Leiden University

Aug. 2018 – Nov. 2020

- **Teaching/laboratory assistant** for Biochemistry 1 at Bachelor program Bio-Pharmaceutical Sciences. Guided 21 students in their first laboratory experience, working with DNA vectors, antibiotic resistance, and protein purification.
- **Teaching assistant** for Calculus 2 in Bachelor program Life Science & Technology. Instructed 30 students in a classroom setting.
- **Student coach** at Life Science & Technology. Assisted 15 students during their first year of the program.
- **Teaching assistant** for Biotechnology summer school in Bachelor program Life Science & Technology. Intensively tutored 7 students during summer, in a classroom setting, and with individual contact.

Publications

- **Thomas C Smits**, Sehi L'Yi, Andrew P Mar, Nils Gehlenborg (2024). *AltGosling: Automatic Generation of Text Descriptions for Accessible Genomics Data Visualization*. <https://doi.org/10.31219/osf.io/26jvr> (under review at *Bioinformatics*)
- **Thomas C Smits**, Sehi L'Yi, Huyen N Nguyen, Andrew P Mar, Nils Gehlenborg (2024). *Explaining Unfamiliar Genomics Data Visualizations to a Blind Individual through Transitions*. <https://osf.io/preprints/osf/v7mxz> (accepted to *IEEE VIS 2024 AccessViz Workshop*)
- Lawrence Weru, Sehi L'Yi, **Thomas C Smits**, Nils Gehlenborg (2024). *Using OpenKeyNav to Enhance the Keyboard-Accessibility of Web-based Data Visualization Tools*. <https://osf.io/preprints/osf/3wj5a> (accepted to *IEEE VIS 2024 AccessViz Workshop*)
- Sehi L'Yi, **Thomas C Smits**, Alexander Lex, Nils Gehlenborg (2023). *Digital Accessibility of Life Science Data Portals and Journal Websites*. OSF Preprints. <https://doi.org/10.31219/osf.io/5v98j>

Conference presentations

Oral presentations

- **Thomas Smits**, Anil Aktas Samur, Romain Lannes, Mariateresa Fulciniti, Masood Shammash, Jill Corre, Kenneth Anderson, Giovanni Parmigiani, Hervé Avet-Loiseau, Nikhil Munshi, Mehmet Samur (2022, August). *OAB-017: Mutations accumulated before and after hyperdiploidy reveal timing and impact of chromosomal gains on multiple myeloma*. 19th International Myeloma Society Annual Meeting, Los Angeles, CA. [https://doi.org/10.1016/S2152-2650\(22\)00290-7](https://doi.org/10.1016/S2152-2650(22)00290-7)

Poster presentations

- **Thomas Smits**, Nikolay Akhmetov, Lisa Choy, John Conroy, Mark Keller, Tiffany Liaw, Juan Puerto, Samson Toor, Morgan L. Turner, Philip Blood, Nils Gehlenborg (2023, December). *Workspaces in Portal: Data Linking and Templates in Jupyter Lab*. HuBMAP. HuBMAP Demo Day, remote.
- **Thomas Smits**, HuBMAP Harvard HIVE-TC, HiDIVE Lab (2023, May). *Workspaces in Portal (in progress): templates allow for easy cell type composition exploration*. HuBMAP Annual Meeting, Nashville, TN.
- **Thomas Smits**, Anil Aktas Samur, Romain Lannes, Mariateresa Fulciniti, Masood Shammash, Jill Corre, Kenneth Anderson, Giovanni Parmigiani, Hervé Avet-Loiseau, Nikhil Munshi, Mehmet Samur (2022, December). *Somatic Changes Prior to the Development of Hyperdiploidy Expose Mutation Accumulation Rate and Activated Processes in Multiple Myeloma*. 64th ASH Annual Meeting and Exposition, New Orleans, LA. <https://doi.org/10.1182/blood-2022-168837>

Awards

- American Society of Hematology **Abstract Achievement Award** (2022) (*awarded to 659 participants, total number of participants ~25 000*)
- International Myeloma Society **Young Investigator Award** (2022) (*awarded to 25 participants, total number of participants ~2000*)
- **Summa cum laude** jurisdiction for BSc. Life Science & Technology (2020) (*top 1 out of 100 students*)
- HOLLAND **scholarship** 2019 for exchange at the University of British Columbia (*top ~10%*)
- Royal Holland Society of Sciences and Humanities (KHMW) **Young Talent Award** in the discipline Chemistry of Life (2018) (*awarded to 67 out of ~10,000 students*)
- **Summa cum laude** jurisdiction for 'propedeuse' (first year) of Life Science & Technology (2018) (*top 2 out of 150 students*)