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HAICHAO MIAO, PHD

I am a research in the field of scientific visualization and focus on large-scale data analysis and immersive analytics.

PERSONAL INFORMATION

Nationality: Austria
Birthdate: April 6th 1987 (in Zhejiang/China)
Languages: German, English, Chinese

EDUCATION

October 2015 – August 2019
Doctoral program in Engineering Sciences Computer Sciences at the TU Wien, Austria (**with distinction**)
Title: Geometric Abstraction for Effective Visualization and Modeling
Advisor: Prof. Ivan Viola

October 2012 – October 2015
Dipl.-Ing. / MSc. in Medical Informatics at the TU Wien, Austria (**with distinction**)

October 2014 – June 2015
TUTheTop Year of 2014/2015 – High Potentials Program at the TU Wien, Austria

October 2007 – June 2012
BSc. in Medical Informatics at the TU Wien, Austria

March 2008 – June 2011
Study of Sinology at the University of Vienna, Austria (not graduated)

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher, December 2020 – now, Center for Applied Scientific Computing, Lawrence Livermore National Laboratory

Researcher, January 2017 – November 2020, Center for Health & Bioresources, Unit for Molecular Diagnostics, Austrian Institute of Technology

Postdoctoral Researcher, August 2019 – June 2020, Institute of Visual Computing & Human-Centered Technology, Vienna University of Technology

Ph.D. Candidate, October 2015 – August 2019, Institute of Visual Computing & Human-Centered Technology, Vienna University of Technology

Visiting Research Fellow, July – August 2018, Visual Computing Group, Harvard University

Software Engineer, July – October 2011, Raiffeisen Bausparkasse, Vienna

AWARDS **Best Paper Honorable Mention** at the *IEEE Pacific Vis Conference 2017, Seoul, South Korea*

Best Paper Honorable Mention at the *Eurographics Workshop on Visual Computing for Biology and Medicine 2015 (EG VCBM), Chester, United Kingdom*

Nominated for Distinguished Young Alumnus Award Winter 2015 at the *TU Wien, Austria*

Visual Data Storytelling Contest Winner at the *IEEE PacificVis 2019 in Bangkok, Thailand.*

**PUBLICATIONS:
JOURNAL AND PEER-
REVIEWED
CONFERENCE
PUBLICATIONS**

Adenita: Interactive 3D modeling and visualization of DNA Nanostructures. Elisa de Llano, Haichao Miao, Yasaman Ahmadi, Amanda J. Wilson, Morgan Beeby, Ivan Viola, Ivan Barisic. *Nucleic Acids Research*, 48(15), 2020.

ScaleTrotter: Illustrative Visual Travels Across Negative Scales. Sarkis Halladjian, [Haichao Miao](#), David Kouřil, Meister Eduard Gröller, Ivan Viola, Tobias Isenberg. *IEEE Transactions on Visualization and Computer Graphics*, 26(1), 2020.

Interactive Exploded Views for Molecular Structures. Maximillian Sbardellati, [Haichao Miao](#), Hsiang-Yun Wu, Meister Eduard Gröller, Ivan Barisic, Ivan Viola. *In Proceedings of the 9th Eurographics Workshop on Visual Computing for Biology and Medicine*. September 2019.

Multiscale Molecular Visualization. [Haichao Miao](#), Tobias Klein, David Kouril, Peter Mindek, Karsten Schatz, Meister Eduard Gröller, Barbora Kozlikova, Tobias Isenberg, Ivan Viola. *Journal of Molecular Biology*, ISSN 0022-2836, 2018.

DimSUM: Dimension and Scale Unifying Maps for Visual Abstraction of DNA Origami Structures. [Haichao Miao](#), Elisa De Llano, Tobias Isenberg, Meister Eduard Gröller, Ivan Barisic, Ivan Viola. *Computer Graphics Forum*, 37(3), 2018.

Multiscale Visualization and Scale-adaptive Modification of DNA Nanostructures. [Haichao Miao](#), Elisa De Llano, Johannes Sorger, Yasaman Ahmadi, Tadija Kekic, Tobias Isenberg, Meister Eduard Gröller, Ivan Barisic, Ivan Viola. *IEEE Transactions on Visualization and Computer Graphics*, 24(1), 2018.

Placenta Maps: In Utero Placental Health Assessment of the Human Fetus. [Haichao Miao](#), Gabriel Mistelbauer, Alexey Karimov, Amir Alansary, Alice Davidson, David F.A. Lloyd, Mellisa Damodaram, Lisa Story, Jana Hutter, Joseph V. Hajnal, Mary Rutherford, Bernhard Preim, Bernhard Kainz, Meister Eduard Gröller. *IEEE Transactions on Visualization and Computer Graphics*, 23(6), 1612-1623, 2017.

Visual Quantification of the Circle of Willis: An Automated Identification and Standardized Representation. [Haichao Miao](#), Gabriel Mistelbauer, Christian Nasel, Meister Eduard Gröller. *Computer Graphics Forum*, 36(6), 393-404, 2017.

CoWRadar: Visual Quantification of the Circle of Willis in Stroke Patients. [Haichao Miao](#), Gabriel Mistelbauer, Christian Nasel, Meister Eduard Gröller. *In Eurographics Workshop on Visual Computing for Biology and Medicine*, 1-10, 2015.

My Erdős number is 3.

INVITED TALKS

From In Silico to In Vitro: Modeling DNA Nanostructures, November 4-6 2019, Cell Visualization Summit, King Abdullah University of Science and Technology, Saudi Arabia.

Visualization and Modeling of DNA Nanostructures, September 18th 2018, 1st DNA Engineering Workshop 2018, Plitvice Lakes, Croatia.

Visual Abstraction and Modeling in DNA Nanotechnology, December 14th 2017, King Abdullah University of Science and Technology, Saudi Arabia.

Visualization and Modeling in DNA Nanotechnology, April 2017, Inria, Grenoble, France.

Visualization of Brain Arteries, the Placenta and DNA Nanostructures in the Context of Abstraction, April 2017, State Key Lab - Zhejiang University, China.

TEACHING & SUPERVISION

Ph.D. Co-supervision (together with Prof. Barbora Kozlikova) of David Kutak, Masaryk University (September 2019 – now)

Supervision of Bachelor theses

(Guest) Lectures in VU Medical Visualization 1 (WS 2018), VU Medical Visualization 2 (SS 2018, SS 2019), VU Computer Animation (SS 2018) and VU Real-time Visualization (SS 2019), VO Computer Graphics (SS 2017)

Teaching staff in “Basics of Scientific Working” (SE WS 2015 – now)

OTHER SCIENTIFIC ACTIVITIES

Topic Editor for Frontiers in Bioinformatics on Visualization of Biomolecular Structures

Tutorial Chair at the annual Eurographics Workshop on Visual Computing for Biology and Medicine (EG VCBM) 2019 in Brno, Czech Republic.

Program Committee at IEEE PacificVis 2020 Visualization Notes Track, IEEE VIS 2020 Short Papers, VCBM 2020, IEEE PacificVis 2020 Visualization Notes Track

Reviewer for IEEE VIS Short Papers 2020, EuroVis 2021 & 2020, VCBM 2019, IEEE VIS 2016,

PROJECTS

Developer of “Adenita: Toolkit for the Modeling and Visualization of DNA Nanostructures” Beta-release available here for free: <https://www.samson-connect.net/element/dda2a078-1ab6-96ba-0d14-ee1717632d7a.html>
