

Mark Belan (he/him)

I am a scientific illustrator and information designer working at the intersection of science and visual communication to translate scientific concepts into impactful and didactic visuals. I am interested in how visual media can assist education, communication, and decision-making, especially in scientific learning, and how visual representation can transform the approachability, transmission, and retention of complex material.

Areas of Interest

- visual communication
- information design/cognitive processing
- visual/illustrative storytelling
- data visualization

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Select Professional Experience

Graphics Editor | **Quanta Magazine** (New York City, United States of America) Oct 2024 - present

- collaborated with the editorial, art, production, and audience staff to research, design, and create science infographics, charts, maps, and data visualizations to illustrate *Quanta's* articles
- created motion graphics, interactive graphics, and data visualizations, as well as collaborated with freelance talent on these projects
- prepared graphics for web publication, including formatting and optimization, for desktop and mobile versions
- led larger, standalone visual projects, some of which involved assigning and overseeing the work of freelance collaborators
- worked closely with writers, editors, and experts to refine and revise graphics, including procuring permissions and facilitating adaptations to graphics from science journals
- maintained and monitored *Quanta's* infographic style, aesthetic, and scientific standards, while collaborating with Art Director to create and maintain a graphics style guide

Science Illustrator and Information Designer | **artsci studios** (Freelance) Oct 2017 - Oct 2024 (on hiatus)

- founder of an independently run production studio creating visuals that support science communication, education, and outreach
- select major clients/projects include:
 - **Scientific American**: illustrations of a geodynamo (Oct 2021); infographic on comparative genomes (Feb 2022); vector graphics about nuclear fusion reactors (June 2023)
 - **NASA**: provided visual communication insight and created scientific illustrations for the academic publications and grants of the NASA PLRP, BASALT, SUBSEA, and VIPER research missions
 - **Museum Graphics**: original graphics showcased in the permanent exhibitions of the Naturhistorisches Museum Wien (Vienna, Austria) and ARTIS- Groote Museum (Amsterdam, Netherlands)
 - **United States Department of Defence**: created informational graphics for Office of Commercial and Economic Analysis

Visual Scientific Communications Specialist | **Visual Capitalist** (Vancouver, Canada) May 2021 - Sept 2023

- created infographics and visual products pertaining to foundational knowledge in different scientific fields
- led junior and senior designers on the production of infographics and visual media pertaining to science media and information
- hosted internal workshops and presentations on variety of topics ranging from creative processes, new discoveries, best practices, and emerging trends in data visualization/scientific visual journalism
- contributed writing for articles and online journalism on scientific news stories and other science-based projects

Creative Innovation Associate | **Red Nucleus** (Toronto, Canada) Oct 2019 - May 2021

- assisted in the generation of digital scientific communication strategies for international pharma clients
- responsible for the development of creative briefs, concepts, proposals, pitch decks, and supporting pitch materials
- led and supported art direction by generating moodboards, style frames, colorboards, and storyboard
- served as a point of integration across production teams to support and maintain original creative visions
- researched and generated innovative ideas, concepts, and approaches for attracting new business
- assisted creative production departments with project overflow by leveraging skills in the following: medical content translation, 2D animation, 3D asset production, graphic design, art direction, and user experience
- managed team collaboration and coordination on the development of internal R&D project initiatives

Multimedia Research Assistant | **Karolinska Institutet** (Stockholm, Sweden) June 2018 - June 2019

- created illustrations and videos for online e-Learning courses as part of the EIT Health CARE (Caregiving Reimagined for Europe) project, hosted on edX
- facilitated HCP meetings for medical content collection, translation, and revisions between international project collaborators
- responsible for pre-production elements: wrote treatments and scripts, created storyboards, and created visual assets (graphic design and live film capture) in preparation for production
- responsible for production material: created educational course materials (videos) within Adobe Creative Suite

Appointments & Residencies

Science Journalist in Residence | Institute of Science and Technology Austria (Vienna, Austria) Mar 2023 - July 2023

- conducted interviews and shadowed researchers about their work to create infographics that promote original science research
- administered workshops and presentations about visual science communication for early career researchers and faculty/staff
- created graphics and illustrations to support press media releases on new academic publications and research
- rebranded the institute's marketing materials to give them a more sophisticated presence with stakeholders and both European and global research networks

Research

transPLANTS: An Animated Guide to Renal Transplantation Sept 2015 - present

- developed four animated modules (2D, illustrated) that details multiple facets of renal transplant care for out-patients
- wrote scripts, illustrated storyboards, and designed a visual metaphor of a flower garden to explain transplant immunology
- established visual language, mood, and styles of characters, environments, and supporting assets for all four animated modules
- performed needs assessments with patient groups and worked alongside several healthcare professionals to build key communication messages and educational content for all four modules
- secured \$25,000 CAD in national funding for ongoing development, hosted fundraising events for additional funding support, and showcased the project at international meetings in Canada and Europe
- project used as a model for student research dissertations and independent projects

NASA Ames Pavilion Lake Research Project | NASA Ames Sept 2013 - Aug 2015

- investigated carbon isotope biosignatures in freshwater microbialites using isotope-ratio mass spectrometry

Education

Master of Science in Biomedical Communications | University of Toronto Conferred Nov 2017

Master's Research Project: transPLANTS: An Animated Guide to Renal Transplantation

Master of Science in Geochemistry & Astrobiology | McMaster University Conferred Nov 2015

Master's Dissertation: Spatial Distribution and Preservation of Carbon Isotope Biosignatures in Freshwater Microbialites

Bachelor of Arts & Science with Combined Honors in Biology | McMaster University Conferred June 2013

Undergraduate Thesis: Exploring the Intersections Between Art and Biology

Select Authored Publications

Accredited contributor to Seth Godin's *The Carbon Almanac : It's Not Too Late*. New York, Portfolio Penguin, 2022.

Puri, K., **Belan, M.**, Burger, C., Wallace, C., Shipley, A., Wall, S., Woolridge, N., Treleaven, D., Gangji, A., Ribic, C., "The Impact of an Educational Animation Module on Patient Knowledge of Immunosuppressive Medications in Patients Referred for Renal Transplant: A APilot Study." *Pharmacy Residency Projects* (2019).

Somai, M.,... **Belan, M.**, et al. (2018) "CARE Campus. A European Consortium Model to Support Formal and Informal Caregiving Training." *Care Weekly* 2.2 (2018): 43-49.

Belan, M., Brady, A., Kim, S-T., Lim, D.S.S., Slater, G. 2019. Spatial Distribution and Preservation of Carbon Isotope Biosignatures in Freshwater Microbialite Carbonate. *ACS Publications*. 3(3): 335-343

Bousses, K., Hawes, I., Lim, D.S.S., Andersen, D.T., **Belan, M.**, Brady, A., Mackey, T., Biddle, J. "The Biological Role Associated with Microbialite Formation at Pavilion Lake, British Columbia." *2018 Ocean Sciences Meeting*. AGU 2018.

Lim, D.S.S., Hawes, I. Mackey, T.J., Brady, A.L., Biddle, J., Andersen, D.T., **Belan, M.**, Slater, G., Abercromby, A., Squyres, S.W., Delaney, M., Haberle, C.W., and Cardman, Z. (2014, December). "The microbial mats of Pavilion Lake microbialites: examining the relationship between photosynthesis and carbonate precipitation". *AGU Fall Meeting Abstracts*. Vol. 2014. 2014.

Select Graphics Publications

Kazamia, Elena. "The Bacteria That Revolutionized the World" *Nautilus Magazine*, 8 April 2024, www.nautil.us/the-bacteria-that-revolutionized-the-world-543827/

Wei-Haas, Maya, "Deep Beneath Earth's Surface, Clues to Life's Origins" *Quanta Magazine*, 4 January 2024, www.quantamagazine.org/deep-beneath-earths-surface-clues-to-lifes-origins-20240104/.

Ball, K., "What is the Future of Fusion Energy?" *Scientific American*, 1 June 2023, www.scientificamerican.com/article/what-is-the-future-of-fusion-energy/.

ISTA. "Wiring up Quantum Circuits with light." *Institute of Science and Technology Austria*, 19 May 2023, ist.ac.at/en/news/wiring-u-quantum-circuits-with-light/.

Whaley-Martin, Kelly J., et al. "O₂ partitioning of sulfur oxidizing bacteria drives acidity and thiosulfate distributions in mining waters." *Nature Communications* 14.1 (2023):2006

Illustrations installed at the Naturhistorisches Museum Wien. Web versions available at the following:
"Hall 6-9: The Earth - A Dynamic Planet: Fragile as Stone" *Naturhistorisches Museum Wien*, 21 Feb. 2023
www.nhm-wien.ac.at/wn/exhibitions/permanent_exhibitions/mezzanin_level_hall_6-9_earth_history.

Newman, Matt. "Not the Last of Us: The Truth About Zombie Fungi." *New York Botanical Garden*, 31 Jan. 2023, www.nybg.org/planttalk/not-the-last-of-us-the-truth-about-zombie-fungi/.

Carnegie Science. "It May Already Be Too Late to Meet U.N. Genetic Diversity Target." *Carnegiescience.edu*, 22 Sept. 2022, carnegiescience.edu/it-may-already-be-too-late-meet-un-genetic-diversity-target-4.

Fox, Douglas. "Junk DNA Deforms Salamander Bodies." *Scientific American*, Feb. 2022, <https://doi.org/10.1038/scientificamerican0222-40>.

Moskowitz, Clara, and Belan, Mark. "The Solar System's Mysterious Magnetic Fields." *Scientific American*, 1 Oct. 2021, www.scientificamerican.com/article/the-solar-systems-mysterious-magnetic-fields/.

Lim, Darlene SS, et al. "The BASALT research program: designing and developing mission elements in support of human scientific exploration of Mars." *Astrobiology* 19.3 (2019): 245-259.

Miller Michael J., et al. "A flexible telecommunication architecture for human planetary exploration based on the BASALT science-driven Mars analog." *Astrobiology* 19.3 (2019): 478-496.

Various articles and infographic contributions can be found at Visual Capitalist: www.visualcapitalist.com/author/markb/

Conference Presentations & Invited Talks

The Value of Visuals in Science Communication

August 2023 – Research Institute of Molecular Pathology, Vienna BioCentre. Vienna, Austria.

April 2023 – Institute of Science and Technology Austria. Vienna, Austria.

February 2023 – Sherman Centre for Digital Scholarship, McMaster University. Hamilton, Canada.

September 2022 – Innsbruck Universitet. Innsbruck, Austria.

Scientific Illustration and Visual Science Communication Workshop

September 2023 – Brown University, Division of Biology and Medicine. Providence, Rhode Island, USA.

May 2023 – MIT Microbiome Consortium 2023. Cambridge, Massachusetts, USA.

From article to art: creative visual abstracts

December 2022 – Elsevier Researcher Academy. Viewable at: shorturl.at/ptwHQ

transPLANTS: Designing an Innovative Solution for Improving Kidney Transplant Patient Education

July 2018 – Njurförbundet Familjveckla. Tanum Strand, Sweden.

How to Use Graphics in Visual Storytelling: Techniques and Strategies for Excellent Communication

June 2018 – Curious Science Writers. Union, NJ, USA.

Scientific Storytelling through Sequential Art (NASA, Science, and Comics, oh my!)

December 2017 – New York Scientific Visualization (SciVizNYC). New York, NY, USA. Viewable at: shorturl.at/ptyT4

Panel & Conference Contributions

Create-a-thon Review Expert | ComSciCon Canada 2023 & 2022 July 29, 2023 | Aug 13, 2023

- reviewed graphical abstracts and visual media created by early career researchers from across Canada and offered feedback and revisions to strengthen science communication

Panelist | 2020 Arts & Science New World of Work Forum Feb 29, 2020

- spoke at McMaster University's Art & Science Faculty conference about the world of work post-undergraduate studies, and what career opportunities look like for students coming from the Arts & Science community

Honors & Awards

Top 3 National Finalist | T3 Transformative Thinking in Transplantation Competition Honored Sept 2017

Award of Merit "Periodontitis" | Association of Medical Illustrators 2017 Honored July 2017

Excellence in the Category of Group/Team | NASA Ames Honor Award Honored July 2014

Press & Podcasts

Mark Belan - Scientific Illustrator | biofounders Podcast Jan 2023

- sofiasbio.substack.com/p/mark-belan-scientific-illustrator?sd-pf#details

Mark Belan Interview | Medical Illustration Podcast Aug 2022

- pkvisualization.com/post/medical-illustration-podcast-mark-belan-interview

Service

St. Joseph's Healthcare Hamilton Foundation Community Fundraiser May 2018

- organizer of community fundraiser supporting research and education for renal care at St. Joseph's Healthcare Hamilton

Skills & Interests

Technical Skills

2D Visualization

- Adobe Creative Suite (Photoshop, Illustrator, After Effects)
- illustration (traditional/digital)
- acrylic painting

3D Visualization

- MAXON Cinema 4D
- Blender LTS

Language Ability

- **English** – native language
- **Swedish** – moderate (conversational; reading/writing)
- **Croatian** – moderate (conversational)

Interests

- astrobiology and space science
- comics and sequential storytelling
- Scandinavia (music, design, language)
- video games and interactive media
- baking with cinnamon

Portfolio

artsci studios | visual science communication and information design

www.artscistudios.com

References available upon request.

An extended list of both academic and graphical publications available upon request.

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