

JEN NGUYEN

CONTACT INFO

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ABOUT ME

I am a scientist, communicator, illustrator, and educator. I am motivated by a desire to make quality education accessible for all. I'm especially interested in visual and interactive forms that invite participants to personalize their learning experiences and exercise their critical thinking.

EDUCATION

PhD in Microbiology <i>Massachusetts Institute of Technology</i> Cambridge, MA (Includes 4 years at ETH Zürich.)	2012-2020
BS/MS in Biology, with Honors <i>University of California, San Diego</i> La Jolla, CA	2006-2011

EXPERIENCE

POSTDOCTORAL FELLOW (MIT) <i>Eric Alm Lab, Dept Bioengineering</i> Cambridge, MA	2022-current
<ul style="list-style-type: none">• How do bacterial metabolites affect ecosystem stability?• Established a workflow to predict (genomics) and experimentally test if >9000 human gut bacteria could produce metabolites of interest	
POSTDOCTORAL FELLOW (UBC) <i>Carolina Tropini Lab, Dept Microbiology and Immunology</i> Vancouver, BC	2020-2022
<ul style="list-style-type: none">• Is bacterial spatial organization a mechanism of ecosystem resilience?• Collaborated with Michael McLaren to correct for sequencing bias in measurements of defined bacterial communities	

DOCTORAL THESIS (MIT AND ETH ZÜRICH)**2012-2020***Roman Stocker Lab, Dept Environmental Engineering | Cambridge, MA and Zürich, Switzerland*

- How does bacterial growth differ in changing vs. constant environments?
- Daily practice in science communication with a diverse team of marine microbiologists, environmental engineers, physicists and mathematicians
- Built and automated microfluidics for time-lapse imaging of single cells; developed image analysis pipeline to quantify growth responses

BS/MS, RESEARCH ASSISTANT (UC SAN DIEGO)**2009-2012***Amy Kiger Lab, School of Biological Sciences | La Jolla, CA*

- What proteins interact in muscle as larvae metamorphose into adult flies?
- Developed passion for research over hours of fly pushing, dissections, and microscopy with generous mentors and inspiring peers

**INFORMAL
LEARNING**

IN-GALLERY LEARNING VOLUNTEER**2023-present***Boston Museum of Science | Boston, MA*

- Engage museum visitors by facilitating hands-on activities in exhibits with In-Gallery Learning spaces
- Assist museum staff in daily operations (activity set-up, break-down, cleaning) and participate in ongoing activity and facilitation training

CONTENT DESIGNER/PROGRAM FACILITATOR**2018-2019***ART LAB Zürich | University of Zürich, Switzerland*

- Conceptualized, developed, and facilitated a 3-hour program, part of a 5-day sci-art event for 12-18 year olds around the theme of "Water"
- Collaborated closely with two colleagues to build and test materials for 3 hands-on activities to explore microbial diversity and Earth's carbon cycle

SCIENTIFIC SCRIPT WRITER/ANIMATOR**2015***Massachusetts Institute of Technology | Cambridge, MA*

- Wrote script for a 2.5-min video debunking a misconception around visible haze and air quality (YouTube link)
- Wrote, animated, and narrated a winning 1.5-min video entry on what environmental research means to me (YouTube link)

TEAM MENTOR**June 2015***Boston Museum of Science, EurekaFest VIII | Boston, MA*

- Facilitated Duck 'N' Hover engineering design challenge for team of 6 high school students
- Encouraged planning and testing as team built a hover craft to lift as many rubber duckies as possible

OUTREACH INSTRUCTOR (2 EVENTS)**2013***MIT Educational Studies Program, SPLASH and SPARK | Cambridge, MA*

- Fall: designed and taught a 1-hour class on evolutionary arms races for high school students in collaboration with colleague, Phil Arevalo
- Spring: designed and taught two 1-hour classes on bio-inspired technology: one for middle schoolers, one for high schoolers

SUMMER CAMP TEACHING ASSISTANT**Summer 2011***San Diego Natural History Museum | San Diego, CA*

- Supported museum staff during week-long programs for 1st-8th graders
- Facilitated activities and excursions to engage learners in the similarities between the ancient and current world

TEACHING

INSTRUCTOR, MICB 430**Fall 2021***University of British Columbia | Vancouver, BC, Canada*

- Planned and facilitated discussions in a research paper reading course of 18 undergraduates in Microbiology and Immunology
- In course evaluations, 100% of students affirmed that I showed genuine interest in supporting their learning throughout the course
- Feedback includes: "I really appreciated the last class where you gave us 2 papers that expand the breadth of the course to some more real-world thinking in relation to a career in science. The discussion opportunity and set up was very welcoming and you mediated the discussion well."

VOLUNTEER TUTOR**2020-2021***Step Up Tutoring | Virtual*

- To offset pandemic-induced K-12 disruptions, tutored one 4th grade student in the Los Angeles Unified School District weekly

TEACHING ASSISTANT (9 COURSES)**2008-2013***UC San Diego (8) and MIT (1) | La Jolla, CA and Cambridge, MA*

- UCSD: held weekly sections for 10-20 students and office hours for Multicellular Life (thrice), Structural Biochemistry (twice), Mammalian Physiology (twice)
- MIT: held twice-weekly sections for 9 students to review lecture material and discuss social issues related to covered biological concepts in Introductory Biology (version 7.015)

NONFICTION WORKSHOP LEADER (2 COURSES)**2010-2011***UC San Diego, Literature and Writing | La Jolla, CA*

- Facilitated weekly in-class workshops for two nonfiction writing courses (LTWR 8C twice), providing feedback and leading discussions of 6-8 writers

AWARDS

- Fellowships**
- NSF Postdoctoral Research Fellowship in Biology (PRFB): 138,000 USD (2021-2023)
 - Killam Postdoctoral Research Fellowship: 104,000 CAD (2021, relinquished to accept NSF award)
 - MIT Bioengineering Communication Lab Fellow: funded training and development in science communication (2013-2015)
 - ThinkSwiss Research Fellow: funded travel and living expenses for the Biology Undergraduate Summer School at the University of Zürich (summer 2009)
- Communication and service**
- Best Contributed Talk at the Ocean Microscale Biophysics Conference: (2016)
 - 3rd place and People's Choice Award at MIT CEE Department Video Competition (2015)
 - Muir College Leadership Award: for undergraduate leadership (2010)

PUBLICATIONS

- Selected Articles (of 13)**
- Nguyen J**, V Fernandez, S Pontrelli, U Sauer, M Ackermann, R Stocker (2021). "A distinct growth physiology enhances bacterial growth under rapid nutrient fluctuations". *Nature Communications*. DOI: 10.1038/s41467-021-23439-8.
- Nguyen J**, J Lara-Gutiérrez, R Stocker (2021). "Environmental fluctuations and their effects on microbial communities, populations and individuals". *FEMS microbiology reviews*. DOI: 10.1093/femsre/fuaa068.
- Nguyen J**, DM Pepin, C Tropini (2021). "Cause or effect? The spatial organization of pathogens and the gut microbiota in disease". *Microbes and Infection*. **Illustrated Figures 1-4**. DOI: 10.1016/j.micinf.2021.104815.
- Jimenez-Martinez, J, **Nguyen J**, D Or (2022). "Controlling pore-scale processes to tame subsurface biomineralization". *Reviews in Environmental Science and Bio/Technology*. DOI: 10.1007/s11157-021-09603-y.
- Digests**
- Nguyen J**, C Tropini (2020). "Bacterial species singled out from a diverse crowd". *Nature*. DOI: 10.1038/d41586-020-03315-z.
- Selected Illustrations (of 10)**
- Nelson, MB, AB Chase, JB Martiny, R Stocker, **Nguyen J**, K Lloyd, RT Oshiro, DB Kearns, JP Schneider, PD Ringel, et al. (2016). "The microbial olympics 2016". *Nature microbiology*. **Illustrated Figure 1**. DOI: 10.1038/nmicrobiol.2016.122.
- Yawata, Y, **Nguyen J**, R Stocker, R Rusconi (2016). "Microfluidic studies of biofilm formation in dynamic environments". *Journal of bacteriology*. **Illustrated Figure 1**. DOI: 10.1128/JB.00118-16.

SKILLS

- Research**
 - Communication to broad audiences (oral and written)
 - Data analysis and interpretation
 - Data organization and munging
 - Hypothesis generation and testing
 - Infographics (data viz and conceptual illustration)
 - Quality control (logical reasoning, fact checking, proof reading)
- Programming**
 - Git (proficient for independent projects, some collaborative experience)
 - MATLAB (proficient)
 - Python, R (operational)
 - Javascript, Linux, SLURM (basic)
- Software**
 - Adobe Illustrator and Photoshop (proficient)
 - Google Workspace, Keynote, Microsoft Office (proficient)
 - Notion (proficient)
- Lab**
 - Microscopy (fluorescence, phase contrast, timelapse)
 - Microfluidics (design, fabrication, implementation)
 - Microbiology (anaerobic culture, physiology, genetics)
 - Tissue dissections (fruit fly, mouse, fixing, staining, imaging)
- Languages**
 - English (native)
 - Vietnamese (household)
 - Spanish, German (basic)