MAXIMILIAN S. WEINHOLD

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RESEARCH INTERESTS

Hydrological – biotic interactions
Constraints on economics
Mycelia structure and dynamics
Perturbations, phase-transitions and percolations
Inertial-magnetic fusion designs
Just wildlife urban interfaces.

EDUCATION

University of Edinburgh, Edinburgh, Scotland, 2023 – Present
Master of Science
Ecological Economics

William and Mary, Williamsburg, VA, 2021
Bachelor of Science
Engineering Physics & Applied Design (EPAD), Psychology
Summa cum laude

Wakefield High School, Arlington, VA, 2017
High School Diploma
Valedictorian

AWARDS AND HONORS

Outstanding Poster Award, National Institutes of Health Postbac Poster Day 2022
Summer Research Mentor Award, National Institutes of Health, 2022
Intramural Research Training Award, National Institutes of Health 2021
Graduated *summa cum laude*, 3.84 GPA, William & Mary 2021
Academic dean's list, William & Mary 2017-2021
Valedictorian, 4.0 GPA, Wakefield High School 2017

PROFESSIONAL EXPERIENCE

National Institutes of Health, Neuron-Glia Signaling and Circuits Unit
Postbaccalaureate research fellow, June 2021 – June 2023

Intramural research training award recipient, National Institute of Neurological Disorders and Stroke
Computational neuroscientist, speech-motor interactions.
Project skills: programming for vocalization, breathing, behavior analysis; *in-vivo* neural recording via electrophysiology and calcium optometry; survival surgeries; single-cell genomic and metabolomic sequencing; histology; microscopy. Research experience with human, mice, rat, and marmoset models.

Kaplan-Cohen Tutoring
Academic tutor, August 2021 – Present

Tutor for K-12 and university.
Subjects: psychology, mathematics, chemistry, biology, physics, economics, government, history, time management, mentoring. Tutoring is geared toward students from a variety of backgrounds, including learning difficulties or history of trauma.

Engineering Physics and Applied Design Capstone
Designer, Breakout Board Process, August 2020 – May 2021

Printed circuit board fabrication for use in applied research.
Project skills: designing and simulating circuit schematics; modelling and computer-aided design (CAD); development of 2D footprint and 3D board layout; operation of PCB milling machine and reflow soldering oven for board fabrication. Process recorded and documented for William & Mary students and faculty.

Nano and biomaterials Lab
Researcher, Algae Diatoms 3-D Bioprinting, May 2019 – August 2020

Algae biomaterials researcher in the William & Mary Applied Science Department.
Project skills: Algae bioreactor construction; population cultivation and growth media modulation; SEM imaging of diatoms and diatomite (siliceous, sedimentary deposits of compactified diatoms); design and fabrication of 3-D diatomite bioprinter; biomaterial tensile and structural testing.

RESEARCH SKILLS

Python, R, MATLAB, Octave
GIS and Spatial Analysis
Computational modelling
in vivo recording
Survival surgery
Machine learning
CAD, electronic circuit design
Optical, confocal, SEM, TEM, AFM imaging
Advanced diving certified

Languages:
Fluent English;
Intermediate Mandarin Chinese, French;
Beginner Spanish, Japanese.

EXTRAOCCUPATIONAL ACTIVITIES

Ecosystem engineer – Garden and park planning, design, implementation

Volunteer, Rockville Science Center - STEAM education and outreach, event hosting

Philanthropy– sending free, native seeds for meadow restoration throughout North America

Activist -published on sustainable materials; organizer for Sunrise Movement Climate Strike

Artist - painting, whittling, sketching, sculpting

Musician - piano, guitar, harmonica

Designer - wildlife cameras, low-cost water filters, machine learning-enabled ships for trash cleanup.

PRESENTATIONS, PUBLICATIONS AND MENTIONS

Weinhold, M. "Don't Ban Plastic — Rethink How It's Designed and Make It Part of Our Ecosystem." Plastics Today, Feb. 2023. https://www.plasticstoday.com/materials/dont-ban-plastic-%C2%A0rethink-how-its-designed-and-make-it-part-our-ecosystem

Weinhold, M., Kaur, H., SheikhBahaei, S. "Voluntary motor defects in Mice with human GNPTAB stuttering mutations: Hyperactivity, Initiations, and Interruptions." Society for Neuroscience, Nov. 2022.

Bishop, M., **Weinhold, M**., Turk, A., Adeck, A., SheikhBahaei, S. "An open source tool for automated analysis of breathing behaviors in common marmosets and rodents." eLife, Jan. 2022. Doi: 10.7554/eLife.71647

Weinhold, M., Levine, J. "Increased concentrations of Lunar dust associated with a denser Lunar atmosphere resulting from heightened human presence and activity on the Moon." NASA Lunar and Planetary Institute, Feb. 2020: https://www.hou.usra.edu/meetings/lunardust2020/pdf/5001.pdf

Lunar Dust and Its Impact on Human Exploration: A NASA Engineering and Safety Center (NESC) Workshop Technical Memorandum: https://ntrs.nasa.gov/citations/20205008219

Gen Z in Hampton Roads to strike for climate action: https://www.dailypress.com/news/dp-nw-climate-strikes-20191204-4jbnb2256vgkbglfsjmpm3m65e-story.html

A dusty road leads back to the Moon: https://www.dailypress.com/virginiagazette/opinion/va-vg-ed-shatz-0918-20190916-nzvhmnetvjbbdjxmrzvk4p5bva-story.html