

## Jamie L. Voros

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INFORMATION [jamie.voros@colorado.edu](mailto:jamie.voros@colorado.edu) blank

EDUCATION **University of Colorado**, Boulder, CO

Ph.D., Aerospace Engineering Sciences, 2018 to 2023

- Thesis Topic: *Orientation Perception*
- Advisor: Torin Clark, Ph.D.

M.S., Computer Science, 2020 to 2022

M.S., Aerospace Engineering Sciences, 2018 to 2020

- Thesis Topic: *Galvanic Vestibular Stimulation*
- Advisor: Torin Clark, Ph.D.

Cumulative GPA: 3.9/4.0

**Massachusetts Institute of Technology**, Cambridge, MA

B.S., Aerospace Engineering, 2012 to 2016

B.S., Architecture, 2012 to 2016

- Thesis Topic: *Transitional Housing in Nepal*
- Advisor: Caitlin Mueller, Ph.D.

Cumulative GPA: 4.6/5.0

RESEARCH **CU Bioastronautics Laboratory** Aug 2018 to Present  
EXPERIENCE Graduate Researcher  
Supervisors: Torin Clark, Ph.D., Allison Anderson, Ph.D.

**MIT Time Capsule to Mars** Jan 2016  
Undergraduate Researcher  
Supervisors: Cassidy Chan, B.S., Paul Lozano, Ph.D.

**MIT Laboratory for Atomistic and Molecular Mechanics** Jun 2015 to Sep 2015  
Undergraduate Researcher  
Supervisors: Zhao Qin, Ph.D., Markus Buehler, Ph.D.

**MIT Human Systems Laboratory** Feb 2015 to May 2015  
Undergraduate Researcher  
Supervisors: Bradley Holschuh, Ph.D., Leia Stirling, Ph.D.

PROFESSIONAL EXPERIENCE **Afference**, Boulder, CO Sept 2023 to Present  
Wearable Technology Research Scientist  
Developed device for generating referred haptic sensation in fingertips

**Meta Reality Labs**, Redmond, WA May 2022 to Aug 2022  
Research Scientist Intern  
Added psychophysical testing capability to AR simulator  
Designed and ran human subject experiment to assess aesthetic preference of AR display via a two interval forced choice task  
Determined where to set parameters affecting AR display based on user preference

**Roblox**, San Mateo, CA (remote) May 2021 to Aug 2021  
Data Science Intern  
Used training data from Roblox platform to fine tune existing machine translation models for Roblox corpus  
Identification of existing Roblox users as avenue for gaining additional training data

**IMC Financial Markets**, Chicago, IL Aug 2016 to Aug 2018  
Quantitative Trader  
Designed and ran trading algorithms, efficacy shown by positive profits and losses  
Automated position management process by developing trades analysis and position reporting tools  
Non-compete (garden leave) from Sep 2017 to Aug 2018

PEER-  
REVIEWED  
PUBLICATIONS

8. **Voros, J.**, Kravets, V., Smith, K., and Clark, T. K. "Humans Gradually Integrate Sudden Gain or Loss of Visual Cues into Spatial Orientation Perception" *Accepted Frontiers in Neuroscience* 2023
7. **Voros, J.** and Clark, T. K. "Human Orientation Perception during Transitions in the Presence of Visual Cues" IEEE Aerospace Conference. Big Sky, MT, 1-10 Mar, 2023. [10.1109/AERO55745.2023.10115644](https://doi.org/10.1109/AERO55745.2023.10115644)
6. **Voros, J.**, McGinley, J., McGuire, S., Walker, M. E., Karki, P., Ahmed, N., Szafir, D., and Clark, T. K. "Trust in an Autonomous Guidance System and Resulting Behavior for a Planetary Rover Task" IEEE Aerospace Conference. Big Sky, MT, 1-10 Mar, 2023. [10.1109/AERO55745.2023.10115675](https://doi.org/10.1109/AERO55745.2023.10115675)
5. **Voros, J.\***, Rise, R.\*, Sherman, S., Durell., A., Anderson, A., Clark, T. K. "A Machine Learning Approach to Identify Stochastic Resonance in Human Perceptual Thresholds" *Journal of Neuroscience Methods* 2022 [10.1016/j.jneumeth.2022.109559](https://doi.org/10.1016/j.jneumeth.2022.109559)  
\*these authors contributed equally to this work

4. **Voros, J.**, Sherman, S., Rise, R., Stine, P., Kryuchkov, A., Anderson, A., Clark, T. K., "Galvanic Vestibular Stimulation Produces Cross Modal Improvements in Visual Thresholds" *Frontiers in Neuroscience* 2021, 31, [10.3389/fnins.2021.640984](https://doi.org/10.3389/fnins.2021.640984)
3. **Voros, J.**, McGinley, J., McGuire, S., Walker, M. E., Karki, P., Ahmed, N., Szafir, D., and Clark, T. K. "Trust in an Autonomous Guidance System for a Planetary Rover Task" IEEE Aerospace Conference. Big Sky, MT, 7-14 Mar, 2020. [10.1109/AERO47225.2020.9172290](https://doi.org/10.1109/AERO47225.2020.9172290)
2. **Voros, J.**, Sherman, S., Rise, R., Callas, M., Kyruchkov, A., Stine, P., Rizkallah, J., Anderson, A., and Clark, T. K. "Multi-Modal Stochastic Resonance to Enhance Astronaut Perceptual Performance: Experimental Design" IEEE Aerospace Conference. Big Sky, MT, 7-14 Mar, 2020. [10.1109/AERO47225.2020.9172477](https://doi.org/10.1109/AERO47225.2020.9172477)
1. Gu, G., Su, I., Sharma, S., **Voros, J.**, Qin, Z., and Buheler, M. "Three-Dimensional Printing of Bio-Inspired Composites" *J Biomech Eng*, 138(2), Jan 2016. [10.1115/1.4032423](https://doi.org/10.1115/1.4032423)

## TALKS

### Conference Presentations

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| 3rd Vestibular Oriented Research Meeting   | June 2023 |
| <i>Model of Motion Perception Following Sudden Transitions of Visual Cue Availability</i>                |           |
| 93rd AsMA Scientific Meeting   | May 2023  |
| <i>Modeling Orientation Perception During Sudden Transitions in Visual Cue Availability</i>              |           |
| 44th IEEE Aerospace Conference   | Mar 2023  |
| <i>Quantification of Human Orientation Perception During Transitions in the Presence of Visual Cues</i>  |           |
| 44th IEEE Aerospace Conference   | Mar 2023  |
| <i>Trust in an Autonomous Guidance System and Resulting Behavior for a Planetary Rover Task</i>          |           |
| 92nd AsMA Scientific Meeting   | May 2022  |
| <i>Human Orientation Perception During Transitions in the Presence of Visual Cues</i>                    |           |
| 91st AsMA Scientific Meeting   | Aug 2021  |
| <i>Adding Perceptual Thresholds to the Observer Model of Orientation</i>                                 |           |
| 2nd Vestibular Oriented Research Meeting   | Mar 2021  |
| <i>Noisy Galvanic Vestibular Stimulation Improves Visual Perceptual Thresholds</i>                       |           |
| 41st IEEE Aerospace Conference   | Mar 2020  |
| <i>Trust in an Autonomous Guidance System for a Planetary Rover Task</i>                                 |           |
| 41st IEEE Aerospace Conference   | Mar 2020  |
| <i>Multi-Modal Stochastic Resonance to Enhance Astronaut Perceptual Performance: Experimental Design</i> |           |

### Invited Colloquium Talks

MCS Multi University Research Initiative Scientific Series <i>Spatial Orientation: Orientation Awareness</i>	Nov 2023
MCS Multi University Research Initiative Scientific Series <i>Spatial Orientation: Orientation Perception</i>	Jul 2023
Texas A&M Bioastronautics Seminar <i>Measuring and Modeling Orientation Perception in Humans</i>	Oct 2022
MIT Human Systems Lab Seminar <i>Measuring and Modeling Orientation Perception in Humans</i>	Sep 2022
CU Boulder Bioastronautics Seminar <i>Modeling Orientation Perception</i>	May 2021
CU Boulder Bioastronautics Seminar <i>Galvanic Vestibular Stimulation for Performance Enhancement</i>	Jan 2020

### Workshop Posters

NASA Human Research Program Investigator's Workshop <i>Modeling Perception of Spatial Orientation in Dynamic Transitions of Visual Conditions</i>	Jan 2021
Women in Machine Learning Workshop (NeurIPS) <i>Classification Algorithm for Stochastic Resonance Identification in Human Perceptual Thresholds</i>	Dec 2020
NASA Human Research Program Investigator's Workshop <i>Galvanic Vestibular Stochastic Resonance To Improve Perceptual Thresholds</i>	Jan 2020
NASA Human Research Program Investigator's Workshop <i>Trust in an Autonomous Intelligent System for Navigational Guidance on a Planetary Rover Task</i>	Jan 2019

### THESES

3. **Voros, J.**, "Perception and Awareness of Spatial Orientation Following Transitions in the Availability of Visual Information" Ph.D. Thesis in Aerospace Engineering Sciences, The University of Colorado: Boulder, CO, 2023.
2. **Voros, J.**, "Cross Modal Stochastic Resonance in Perceptual Thresholds with Galvanic Vestibular Stimulation" M.S. Thesis in Aerospace Engineering Sciences, The University of Colorado: Boulder, CO, 2020.  
[10.13140/RG.2.2.29795.99367](https://hdl.handle.net/10.13140/RG.2.2.29795.99367)
1. **Voros, J.**, "One size does not fit all: innovation in emergency housing with a focus on Nepal 2015" B.S. Thesis in Architecture, Massachusetts Institute of Technology: Cambridge, MA, 2016.  
[hdl.handle.net/1721.1/106409](https://hdl.handle.net/1721.1/106409)

MENTORSHIP **Center for Teaching and Learning** Aug 2021 to May 2022  
AND TEACHING Lead Teaching Assistant

Mentored and served as primary contact for over 40 graduate teaching assistants in the Aerospace Engineering Sciences department  
Organized orientation of incoming graduate teaching assistants

**Smead Aerospace Engineering Sciences** Aug 2018 to Dec 2018  
Graduate Teaching Assistant

Head TA for Senior Propulsion, ASEN 4013  
Supervisor: James Nabity, Ph.D.

**Mentored Students** Jan 2019 to Present  
CU Smead Aerospace Engineering Sciences

**Sweta Alla**, "Human Subject Testing in Large Motion Devices" Spatial Orientation Research Project supervisor

**Fabrizio Roberts**, "Building a VR display for legacy systems" CU Summer Program for Undergraduate Research (SPUR) supervisor

**Jasmin Godinez**, "Modelling Orientation Perception in Changing Light Conditions" STEM Routes Supervisor

**Abigail Durell**, "Classification of Stochastic Resonance Based Improvements in Perceptual Thresholds" BrainStim Research Project supervisor

**Daniel Gutierrez-Mendoza**, "Data Collection for Stochastic Resonance based Performance Improvement" BrainStim Research Project supervisor

**Anna Jonsen**, "Stochastic Resonance in Vibrotactile Thresholds: Data Collection and Device Design" BrainStim Research Project supervisor

**Maria Callas**, "Building a Device to Measure Vibrotactile Thresholds" BrainStim Research Project supervisor

**Ponder Stine**, "Integration of Threshold Measurement Devices" CU Summer Program for Undergraduate Research (SPUR) supervisor

**James Rizkallah**, "Simulation of Threshold Measurements to Inform Testing Procedures" CU Undergraduate Research Program (UROP) supervisor

SERVICE **Aerospace Graduate Student Organization**, Co-Chair 2018 to 2019  
Oversaw co-ordination of social, outreach, and career based events for Aerospace Graduate Students.

**Fraternity of Delta Psi**, Executive Committee 2016  
One of five to be elected to represent the fraternity of Delta Psi  
Co-ordinated fraternity events, worked with MIT police and administration to manage risk and maintain a safe environment for all social events

**International Students Office**, Orientation Co-Ordinator 2015  
Prepared presentations and sessions to help international freshmen acculturate, event coordination for over 150 people throughout orientation week, arranged student executed airport pickups for freshmen

Served as primary contact for over 100 international freshmen and transfers and over 40 mentors  
 Lead merger of mentorship programs for first year students and upperclassmen mentors

**MIT Lightweight Crew, Division I**, Athlete 2012 to 2015  
 1st Varsity VIII

**International Student Association**, Executive Board 2013 to 2016  
 Coordinated large scale events including Gatsby, an inter collegiate social for over 300 people, managed financing, evaluated performance, designed and illustrated publications, publicized events to over 2000 people

**International Orientation**, Orientation Leader 2014 to 2016  
 Mentored first year students, assisted their familiarization with American culture, advised on academic choices

**England Lacrosse**, Junior National Team Athlete 2011

HONOURS	Amelia Earhart Fellow	2021
	MIT Great Dome Award	2020
	Sheryl R. Young Memorial Fellowship	2019
	Neville Walton Award	2016
	UK Mathematics Trust (UKMT) Initial Training Camp for Potential UK Team Members	2011
	9th in UK, UKMT Mathematical Olympiad for Girls	2011
	UKMT Intermediate Olympiad Medalist (top 50 in UK)	2010

OUTREACH	McNair Scholars Program Mentor	2022
	STEM Goes Red Mentor	2022
	STEM Potential Panellist	2021
	TEDxCherryCreek Speaker	2020

OTHER TECHNICAL DOCUMENTS	5. Merfeld, D., Clark, T. K., <b>Voros, J.</b> , Folga, R., Pettijohn, K., Robinson, E., Sestito, M., Sherwood, S. "Head on Neck Tilt Perception is Modulated by Body Tilt" Aerospace Medical Association Scientific Meeting, May 2022. (Podium abstract)
	4. Williams, H. P., <b>Voros, J.</b> , Merfeld, D. M., Clark, T. K. "Adding Vestibular Thresholds to Observer" Aerospace Medical Association Scientific Meeting, Aug 2021. (Podium abstract)
	3. Clark, T. K., Sherman, S., Rise, R., <b>Voros, J.</b> , Durell, A., Greenstein, M., Gutierrez Mendoza, D., Jonsen, A., Kryuchkov, A., Schlittenhart, M., Watson, C., Anderson, A. P. "Cross-modal and Multi-Modal

Stochastic Resonance to Enhance Crew Perception as a Countermeasure for Performance Degradation” NASA Human Research Program Investigators Workshop, Feb 2021. (Podium abstract)

2. Clark, T. K., **Voros, J.**, Merfeld, D., Williams, H. “Extending the observer model for human orientation perception to include in-flight perceptual thresholds” Aug 2020. ([Military Technical Report](#))
1. Rise, R., **Voros, J.**, Anderson, A., Clark, T. K., “Using Simulations to Improve Sensory Threshold Estimation on Two-Interval Stochastic Resonance Tasks” NASA Human Research Program Investigators Workshop, Jan 2020. (Poster)