Jamie L. Voros

CONTACT INFORMATION
+1 617-909-0628
jamie.voros@colorado.edu

Portfolio
jamievoros.com

EDUCATION

University of Colorado, Boulder, CO

Ph.D., Aerospace Engineering Sciences, expected 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 EXPERIENCE

CU Bioastronautics Laboratory Jan 2019 to Present
Graduate Researcher

Measuring and modelling orientation perception and conscious knowledge of orientation
Mentored of team of 4 undergraduate research assistants, mentored 5 additionl undergraduate assistants individually
Supervisors: Torin Clark, Ph.D., Allison Anderson, Ph.D.

ATLAS Institute IRON Laboratory Sep 2018 to Jan 2019
Graduate Researcher

Made novel finding indicating trust in navigational assistance systems is agnostic to perceived source (human or algorithmic) by statistically analysing multivariate human subject data
Supervisor: Torin Clark, Ph.D.

MIT Time Capsule to Mars Jan 2016
Undergraduate Researcher
- Determined viability of engineering system requirements for Time Capsule to Mars
- Performed trade study on different communications architecture and created a parametric link budget
- Supervisors: Cassidy Chan, B.S., Paul Lozano, Ph.D.

MIT Laboratory for Atomistic and Molecular Mechanics Jun 2015 to Sep 2015
Undergraduate Researcher
- Designed and implemented system to 3D print artificial bone resulting in successful prints by adding pressure based extrusion system to a COTS plastic 3D printer
- Publication in JBME
- Supervisors: Zhao Qin, Ph.D., Markus Buehler, Ph.D.

MIT Human Systems Laboratory Feb 2015 to May 2015
Undergraduate Researcher
- Ergonomic clasp design and fabrication using CAD techniques and 3D printing to permit use of shape memory alloys to allow NASA JPL's *BioSleeve* to be tightened to previously determined pressure after being donned
- Designed and executed experiment, performed computational data analysis to determine optimal EMG pressure
- Supervisors: Bradley Holschuh, Ph.D., Leia Stirling, Ph.D.

PROFESSIONAL EXPERIENCE

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 asses 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

TALKS

Conference Presentations

3rd Vestibular Oriented Research Meeting June 2023
Model of Motion Perception Following Sudden Transitions of Visual Cue Availability

93rd AsMA Scientific Meeting May 2023
Modeling Orientation Perception During Sudden Transitions in Visual Cue Availability

44th IEEE Aerospace Conference Mar 2023
Quantification of Human Orientation Perception During Transitions in the Presence of Visual Cues

44th IEEE Aerospace Conference Mar 2023
Trust in an Autonomous Guidance System and Resulting Behavior for a Planetary Rover Task

92nd AsMA Scientific Meeting May 2022
Human Orientation Perception During Transitions in the Presence of Visual Cues

91st AsMA Scientific Meeting Aug 2021
Adding Perceptual Thresholds to the Observer Model of Orientation

2nd Vestibular Oriented Research Meeting Mar 2021
Noisy Galvanic Vestibular Stimulation Improves Visual Perceptual Thresholds

41st IEEE Aerospace Conference Mar 2020
Trust in an Autonomous Guidance System for a Planetary Rover Task

41st IEEE Aerospace Conference Mar 2020
Multi-Modal Stochastic Resonance to Enhance Astronaut Perceptual Performance: Experimental Design

Colloquium Talks

Texas A&M Bioastronautics Seminar Oct 2022
Measuring and Modeling Orientation Perception in Humans

MIT HSL Seminar Sep 2022
Measuring and Modeling Orientation Perception in Humans

CU Boulder Bioastronautics Seminar May 2021
Modeling Orientation Perception

CU Boulder Bioastronautics Seminar Jan 2020
Galvanic Vestibular Stimulation for Performance Enhancement

Workshop Presentations

NASA Human Research Program Investigator's Workshop Jan 2021
Modeling Perception of Spatial Orientation in Dynamic Transitions of Visual Conditions

Women in Machine Learning Workshop (NeurIPS) Dec 2020
Classification Algorithm for Stochastic Resonance Identification in Human Perceptual Thresholds

NASA Human Research Program Investigator's Workshop Jan 2020
Galvanic Vestibular Stochastic Resonance To Improve Perceptual Thresholds

NASA Human Research Program Investigator's Workshop Jan 2019
Trust in an Autonomous Intelligent System for Navigational Guidance on a Planetary Rover Task

Peer-Reviewed Publications

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

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

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
*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

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

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

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

THESES

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

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

MENTORSHIP EXPERIENCE

Center for Teaching and Learning Aug 2021 to May 2022
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 Vibrotatile 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

13. **Voros, J.** and Clark, T. K. “Model of Motion Perception Following Sudden Transitions of Visual Cue Availability” Vestibular Oriented Research Meeting, June 2023. (Podium abstract)

12. **Voros, J.** and Clark, T. K. “Modeling Orientation Perception During Sudden Transitions in Visual Cue Availability” Aerospace Medical Association Scientific Meeting, May 2023. (Podium abstract)

11. **Voros, J.**, Kravets, V., Smith, K., Temple, D., Clark, T. K. “Human Orientation Perception During Transitions in the Presence of Visual Cues” Aerospace Medical Association Scientific Meeting, May 2022. (Podium abstract)

10. Merfeld, D., Clark, T. K., **Voros, J.**, Folga, R., Pettijohn, K., Robinson, E., Sestito, M., Sherwood, S. “Human Orientation Perception During Transitions in the Presence of Visual Cues” Aerospace Medical Association Scientific Meeting, May 2022. (Podium abstract)

9. Williams, H. P., **Voros, J.**, Merfeld, D. M., Clark, T. K. “Adding Vestibular Thresholds to Observer” Aerospace Medical Association Scientific Meeting, Aug 2021. (Podium abstract)

8. **Voros, J.,** Rise, R., Sherman, S., Anderson, A., Clark, T. K. “Noisy Galvanic Vestibular Stimulation Improves Visual Perceptual Thresholds” Vestibular Oriented Research Meeting, Feb 2021. (Podium abstract)

7. Clark, T. K., Sherman, S., Rise, R., **Voros, J.**, 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)

6. **Voros, J.**, Clark, T. K. “Modeling Perception of Spatial Orientation in Dynamic Transitions of Visual Conditions” NASA Human Research Program Investigators Workshop, Feb 2021. (Poster)

5. **Voros, J.*,** Rise, R.*, Sherman, S., Durell., A., Anderson, A., Clark, T. K. “Classification Algorithm for Stochastic Resonance Identification in Human Perceptual Thresholds” 15th Women in Machine Learning Workshop (WiML), NeurIPS, Dec 2020. (Poster)
*these authors contributed equally to this work

4. 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)

3. **Voros, J.**, Callas, M., Anderson, A. P., Clark T. K. “Galvanic Vestibular Stochastic Resonance To Improve Perceptual Thresholds” NASA Human Research Program Investigators Workshop, Jan 2020. (Poster)

2. 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)

1. **Voros, J.**, McGinley, J., McGuire, S., Walker, M. E., Karki, P., Ahmed, N., Szafir, D., and Clark, T. K. “Trust in an Autonomous Intelligent System for Navigational Guidance on a Planetary Rover Task” NASA Human Research Program Investigators Workshop, Jan 2019. (Poster)