

EDUCATION

ARIZONA STATE UNIVERSITY	Ph.D.	COMPUTER ENGINEERING,	2019—PRESENT
	M.S.	COMPUTER ENGINEERING,	2018—2020
	B.S.	SOFTWARE ENGINEERING,	2014—2018

PUBLICATIONS

Bahremand, A., Spackman, C., Gerkin, R.C., Smith, B.H., LiKamWa, R. "Virtually composing and dynamically mixing complex odors", In Proc. ACM **CHI Smell, Taste, Touch, Temperature '21**

Gold, L., **Bahremand, A.**, Richards, C., Sese, K., Powell, K., Dickenshied, S., Edwards, C.S., LiKamWa, R. "Visualizing Planetary Spectroscopy through Immersive On-site Rendering" In Proc. **IEEE VR '21**

Bahremand, A., Gold, L., Richards, C., Sese, K., Powell, K., Dickenshied, S., Edwards, C.S., LiKamWa, R. "Virtual and Augmented Reality Tools for Planetary Scientific Analysis and Public Engagement", In Proc. **LPSC '20**

Shaikh, A., Nguyen, L., **Bahremand, A.**, Bartolomea, H., Liu, F., Nguyen, V., Anderson, D., LiKamWa, R. "Coordinate: A Spreadsheet-Programmable Augmented Reality Framework for Immersive Map-Based Visualizations", In Proc. **IEEE AIVR '19**

Bahremand, A., Nguyen, L., Harrison, T., LiKamWa, R. "HoloLucination: A Framework for Live Augmented Reality Presentations Across Mobile Devices", Demo: **IEEE AIVR '19**

Sagheb, S., Liu, F., **Bahremand, A.**, Kidane, A., LiKamWa, R. "SWISH: Shifting Weight-Based Interfaces For Simulated Hydrodynamics in Mixed Reality Fluid Vessels", In Proc. ACM **UIST '19**

Prakash, S., **Bahremand, A.**, Nguyen, L., LiKamWa, R. "GLEAM: An Illumination Estimation Framework For Real-Time Photorealistic Augmented Reality On Mobile Devices", In Proc. ACM **MobiSys '19**

Powell, K., **Bahremand, A.**, Gonzalez, A., LiKamWa, R., Edwards, C. "An Integrated Environment for Visualizing In-Situ and Orbital Planetary Data", In Proc. **LPSC '19**

EXPERIENCE

RESEARCH ASSISTANT • ASU METEOR STUDIO • 2017—PRESENT

- Researching adaptive volumetric streaming frameworks between edge-assisted depth sensors & mobile devices using 5G enabled networks.
- Ongoing research & development with multi-sensory frameworks for 3D game engines that integrate tactile & olfactory stimulus into AR/VR experiences.
- Researched & developed a planetary data visualization framework & application for planetary scientists at ASU.

SOFTWARE ARCHITECT • ASU METEOR STUDIO, ASU LEARNING FUTURES COLLABORATORY • 2019—PRESENT

- Documenting, designing & developing educational VR experiences along with virtual storytelling tools for the ASU Dreamscape Learn platform.
- Researching & developing cloud-based render streaming tools for VR experiences on the Oculus Quest and Dreamscape Learn platform.
- Trained a team of undergraduates to build an iOS/Android AR application that will be used by ASU's Introductory Biology courses in 2022.
- Designed & developed a mobile AR application for ASU's Fall '21 Commencement that included volumetric captures of commencement speakers.
- Designed & developed a WebXR framework that allowed teachers to build virtual field trips of the ASU campus.

INDEPENDENT CONTRACTOR • BRITISH STANDARDS INSTITUTE, BALU STUDIOS • 2020—2021

- Fullstack development on an AR application for designing and using in-situ workforce training software.
- Designed and developed a suite of VR training applications along with a developer tool to coordinate async events in Unity3D.
- Evaluated and presented on VR telecommunications tools and training applications as a VR consultant for BSI.

SOFTWARE ENGINEER • NASA • 2019

- Researched, designed, and developed a framework to build VR training experiences involving complex CAD models.
- Built two different VR astronaut training experiences for ISS payloads at MSFC's ECLSS division.
- Developed and demoed a Mars Habitat simulation at NASA's 50th Apollo 11 celebration in Washington D.C.

UNDERGRADUATE TEACHING ASSISTANT • ASU • 2016—2017

- Wrote in-class assignments for *SER334: Operating Systems & Networks*.
- Lead online discussion forums for *SER250: Microarchitecture & Computer Architecture*.

AT-HOME-ADVISOR • APPLE • 2015—2016

- Assisted & troubleshooted customer problems remotely across all Apple Products & services (Macs, iPhones, iCloud, etc).

SKILLS

Research Interests Multi-sensory Systems, Edge-Assisted Wearables, Volumetric Streaming, Storytelling Tools

Tools & Technologies Adobe Suite, AWS, Azure (Cloud, Kinect, Remote Rendering, Spatial Anchors), C, C++, C#, Java, Javascript, Git, Node, NVIDIA (Cloud XR, Jetson), NI MAX, Open3D OpenCV, Python, Raspberry Pi, Unity3D (MLAPI, Photon, ARFoundation, MRTK, Timeline, XR), Visual Studio

TALKS

2021 "The Smell Engine" ACM CHI Smell, Taste, Touch
2020 "XR Software Development" SunHacks Hackathon

2019 "XR Software Development" NASA MSFC
2018 "The Art within AR/VR" TEDxASU, "Teamwork" MPS

ACTIVITIES AND SERVICE

Volunteer • 2019 TEI, MobiSys
Vice President • 2019 TEDxASU
President • 2016-'18 ASU Polytechnic Computer Science Club

Mentor • 2016-'20 Sunhacks Hackathon, ASU Science & Engineering Experience, ASU AME Summer Coding Camp
Instructor • 2010-'12 Karate Instructor Assistant

SELECTED AWARDS

2019 ASU University Graduate Fellowship, ASU University Engineering Fellowship, MobiSys Best Demo Runner Up
2018 ASU Convocational Speaker Faculty Nomination, ASU Outstanding Software Engineer Faculty Nomination

2017 First Place PayPal Opportunity Hackathon, First Place AZ Desert Hacks Hackathon
2016 Best Embedded Hack Nomination PennApps Hackathon
2011 Second Degree Black Belt

CURRICULUM VITAE – ALIREZA BAHREMAND

PERSONAL INFORMATION

Alireza Bahremand
Mesa, AZ 85207
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abahrema@asu.edu
Website: alirezabahremand.com

EDUCATION

Ph.D. Computer Engineering *Arizona State University*
Advised by Dr. Robert LiKamWa, 2019-current

M.S. Computer Engineering *Arizona State University*
Graduated Spring 2021

B.S. Software Engineering *Arizona State University*
Graduated May 2018

PUBLICATIONS

"Virtually composing and dynamically mixing complex odors"

Alireza Bahremand, Christy Spackman, Richard C Gerkin, Brian H Smith,
Robert LiKamWa

In Proc. ACM CHI Smell, Taste, Touch, Temperature 2021

"Visualizing Planetary Spectroscopy through Immersive On-site Rendering"

Lauren Gold, **Alireza Bahremand**, Connor Richards, Kyle Sese, Kathryn Powell,
Scott Dickenshied, Christopher Scott Edwards, Robert LiKamWa

In Proc. IEEE VR 2021

*"Virtual & Augmented Reality Tools for Planetary Scientific Analysis & Public
Engagement"*

Alireza Bahremand, Lauren Gold, Connor Richards, Kyle Sese, Kathryn Powell,
Scott Dickenshied, Christopher Scott Edwards, Robert LiKamWa

In Proc. LPSC 2020

*"Coordinate: A Spreadsheet-Programmable Augmented Reality Framework for Im-
mersive Map-Based Visualizations"*

Aashiq Shaikh, Linda Nguyen, **Alireza Bahremand**, Hannah Bartolomea, Frank
Liu, Van Nguyen, Derrick Anderson, Robert LiKamWa

Proc. ACM AIVR 2019

*"HoloLucination: A Framework for Live Augmented Reality Presentations Across
Mobile Devices,"* **Alireza Bahremand**, Linda Nguyen, Tanya Harrison, Robert
LiKamWa

Demo ACM AIVR 2019

*"SWISH: A shifting-weight interface of simulated hydrodynamics for haptic per-
ception of virtual fluid vessels"*

Shahabegin Sagheb, Frank Liu, **Alireza Bahremand**, Assegid Kidane, Robert
LiKamWa

In Proc. ACM UIST 2019

"GLEAM: Global Light Estimation Across Mixed Reality Devices"

Siddhant Prakash, **Alireza Bahremand**, Linda Nguyen, Robert LiKamWa

In Proc. ACM MobiSys 2019

"An Integrated Environment for Visualizing In-Situ and Orbital Planetary Data"
 Kathryn Powell, **Alireza Bahremand**, Alec Gonzalez, Robert LiKamWa, Chris Edwards
 In Proc. LPSC 2019.

TECHNICAL SKILLS	<p>Research Interests Multi-sensory Systems, Edge-Assisted Wearables, Volumetric Streaming, Storytelling Tools</p> <p>Programming Languages C, C#, C++, Java, JavaScript, Python</p> <p>Tools, Frameworks, Technologies Adobe Suite, Arduino, AWS, Azure (Cloud, Kinect, Remote Rendering, Spatial Anchors), Git, Node, NVIDIA (Cloud XR, Jetson) , NI MAX, Open3D, OpenCV, Raspberry Pi, Unity3D (MLAPI, Photon, ARFoundation, MRTK, Timeline, XR), Visual Studio</p>
SPOKEN LANGUAGES	English (primary), Farsi (proficient).
PROFESSIONAL EXPERIENCE	<p>2017-Current Research Assistant ASU Meteor Studio</p> <ul style="list-style-type: none"> – Researching adaptive volumetric streaming frameworks between edge-assisted depth sensors mobile devices using 5G enabled networks. – Ongoing research development with multi-sensory frameworks for 3D game engines that integrate tactile olfactory stimulus into AR/VR experiences. – Researched developed a planetary data visualization framework application for planetary scientists at ASU. <p>2019-Current Software Architect ASU Meteor Studio, ASU Learning Futures Collaboratory</p> <ul style="list-style-type: none"> – Documenting, designing developing educational VR experiences along with virtual storytelling tools for the ASU Dreamscape Learn platform. – Researching developing cloud-based render streaming tools for VR experiences on the Oculus Quest and Dreamscape Learn platform. – Trained a team of undergraduates to build an iOS/Android AR application that will be used by ASU Introductory Biology courses in 2022. – Designed developed a mobile AR application for ASU Fall 2021 Commencement that included volumetric captures of commencement speakers. – Designed developed a WebXR framework that allowed teachers to build virtual field trips of the ASU campus. <p>2020-Current Independent Contractor British Standards Institute, Baltu Studios</p> <ul style="list-style-type: none"> – Fullstack development on an AR application for designing and using in-situ workforce training software. – Designed and developed a suite of VR training applications along with a developer tool to coordinate async events in Unity3D. – Evaluated and presented on VR telecommunications tools and training applications as a VR consultant for BSI.

2019 | XR Software Engineer Intern

NASA

- Researched, designed, and developed a framework to build VR training experiences involving complex CAD models.
- Built two different VR astronaut training experiences for ISS payloads at MSFC's ECLSS division.
- Developed and demoed a Mars Habitat simulation at NASA's 50th Apollo 11 celebration in Washington D.C.

2016-2018 | Undergraduate Teaching Assistant

ASU

- Wrote in-class assignments for SER334: Operating Systems Networks.
- Lead online discussion forums for SER250: Microarchitecture Computer Architecture.

2015 | At Home Advisor

Apple

- Assisted troubleshooted customer problems remotely across all Apple Products services (Macs, iPhones, iCloud, etc).

EXTRACURRICULARS 2017-2021 | Mentor, Judge, and Organizer

SunHacks Hackathon at ASU

- Mentored students to learn new technologies such as Full Stack Web Development, Microcontrollers, VR/AR, and Unity3D Game Development.
- Helped organize and market the largest ASU Hackathon.

2019 | Vice President

TEDxASU

- Assisted in interviewing/recruitment of 20+ students, 8 speakers, securing ASU Gammage Theater as venue for largest TEDxASU event.

2015-2018 | President

Computer Science Club at ASU

- Coordinated biweekly workshops, guest lectures, and social events for engineering students.
- Recruited 50+ students from two campuses and online.

2018-2019 | Mentor, Teaching Assistant

ASU Science and Engineering Experience, ASU AME Summer Coding Camp

- Designed workshops/tutorials for high-school summer coding camp and mentored high-school students for the AZ regional science fair.

TALKS

2021 - The Smell Engine *ACM CHI Smell, Taste, Touch Workshop*
2018-20 - XR Software Development, *ASU Hackathons*
2019 - XR Software Development, *NASA*
2018 - The Art Within AR/VR, *TEDxASU*

SCHOLARSHIPS AND AWARDS

2019 - University Graduate Fellowship, *ASU*
2019 - University Engineering Fellowship, *ASU*
2019 - Best Demo Runner Up, *ACM MobiSys*
2019 - Student Travel Award, *ACM MobiSys*
2018 - Convocational Speaker Faculty Nomination, *ASU*
2018 - Outstanding Software Engineer Faculty Nomination, *ASU*
2018 - Blowers Engineering Scholarship, *ASU*
2017 - First Place *PayPal Opportunity Hacks Hackathon*
2017 - First Place *AZ Desert Hacks Hackathon*
2016 - Best Embedded Hack Nomination *PennApps Hackathon*