ALIREZA BAHREMAND

alirezabahremand.com
abahrema@asu.edu
480-619-7420

EDUCATION

ARIZONA STATE UNIVERSITY
Ph.D. ELECTRICAL ENGINEERING, 2019–PRESENT
B.S. SOFTWARE ENGINEERING, 2014–2018

PUBLICATIONS

"Virtual and Augmented Reality Tools for Planetary Scientific Analysis and Public Engagement"
Alireza Bahremand, Lauren Gold, Connor Richards, Kyle Sese, Kathryn Powell, Scott Dickenshied, Christopher Scott Edwards, Robert LiKamWa
LPSC '20: Proc. of the 51st annual int'l conf. on lunar and planetary science conference

"Coordinate: A Spreadsheet-Programmable Augmented Reality Framework for Immersive Map-Based Visualizations"
Aashiq Shaikh, Linda Nguyen, Alireza Bahremand, Hannah Bartolomea, Frank Liu, Van Nguyen, Derrick Anderson, Robert LikamWa
AIVR '19: IEEE International Conference on Artificial Intelligence and Virtual Reality

"SWISH: Shifting Weight-Based Interfaces For Simulated Hydrodynamics in Mixed Reality Fluid Vessels"
Shahabedin Sagheb, Frank Liu, Alireza Bahremand, Assegid Kidane, Robert LiKamWa
UIST '19: Proc. of the 32nd Annual ACM Symposium on User Interface Software and Technology

"GLEAM: An Illumination Estimation Framework For Real-Time Photorealistic Augmented Reality On Mobile Devices"
Siddhant Prakash, Alireza Bahremand, Linda Nguyen, Robert Likamwa
MobiSys '19: Proc. of the 17th annual int'l conf. on mobile systems, applications, and services

"An Integrated Environment for Visualizing In-Situ and Orbital Planetary Data"
Kathryn Powell, Alireza Bahremand, Alec Gonzalez, Robert LiKamWa, Chris Edwards
LPSC '19: Proc. of the 50th annual int'l conf. on lunar and planetary science conference

EXPERIENCE

SOFTWARE ARCHITECT • ASU METEOR STUDIO, ASU LEARNING FUTURES COLLABORATORY, DREAMSCAPE • 2020–PRESENT
– Managed and trained a team to develop an educational mobile augmented reality application for ASU's Biology program and Dreamscape.
– Performed Mixed Reality volumetric filming, mobile AR software development, and framework design for the ASU Fall Virtual Commencement.
– Designed and implemented a web-based virtual reality and desktop Campus Tours framework for ASU LFC.

INDEPENDENT CONTRACTOR • BRITISH STANDARDS INSTITUTE, BALTU STUDIOS • 2020–PRESENT
– Consulting, software evaluation, and software development of virtual reality telecommunications and training software for BSI.
– Unity3D virtual reality and mobile augmented reality software design and development for Baltu Studios.

PROJECT MANAGER • ASU METEOR STUDIO, ASU INTERPLANETARY INITIATIVE, TEDxASU • 2018–2020
– Managed portfolio and budgeting of various projects from multiple university departments (Art, Space, Engineering).
– Assisted in interviewing/recruitment of 20+ students, 8 speakers, & securing ASU Gammage Theater as venue for largest TEDxASU event.
– Trained multiple students from various university departments to develop VR/AR applications using Unity3D.
– Trained multiple teams to develop and publish augmented reality Android & iOS apps.

XR SOFTWARE ENGINEER • NASA • 2019
– Developing XR applications for visualizing & interacting with complex CAD models and Mars habitats in VR using Unity3D.
– Documenting and developing VR software frameworks to reduce cost & time for production of VR training simulations.

RESEARCH ASSISTANT • ASU METEOR STUDIO • 2017– PRESENT
Research Direction: Energy-efficient digital-to-physical hybridization of mixed reality environments and perceptual modalities.
– Studying and developing the integration of olfactory sensations for virtual and augmented reality environments.
– Software engineering for multiple virtual and augmented reality systems and applications.
– Trained and up-skilled students with software versioning and Unity3D software development.

UNDERGRADUATE TEACHING ASSISTANT • ASU • 2016–2017
– Wrote in-class assignments for 10 units of *SER334: Operating Systems & Networks*.
– Lead online discussion forums for troubleshooting assignments in *SER250: Microarchitecture & Computer Architecture*.

ONLINE TECH SUPPORT • APPLE • 2015–2016
– Learned how to communicate with customers for difficult technical matters solely through vocal communication.
– Assisted & troubleshooted customer problems with all Apple Products & services (Mac's, iPhones, iCloud, iMovie, etc).

ACHIEVEMENTS, SKILLS, AND EXTRACURRICULAR ACTIVITIES

LANGUAGES: C, C#, C++, Java, Javascript, Prolog, Python
FRAMEWORKS & LIBRARIES: ARFoundation, ARCore, ARKit, AVRdude, OpenXR, .NET, NVIDIA FLEX, React, Unity3D, SteamVR, Vue, Vuforia, Windows Mixed Reality Toolkit, WebXR
TECHNICAL TOOLS: Adobe Illustrator & Photoshop, Arduino, AWS, Bash, Blender, Git, LaTeX, Node, Raspberry Pi, REST API, UML Design, Unity3D, Unreal Engine, Visual Studio, Xcode
AWARDS: 2nd Degree Black Belt, ACM MobiSys Best Demo Runner Up, First Place PayPal Opportunity Hackathon, First Place AZ Desert Hacks Hackathon, ASU University Graduate Fellowship Award, ASU University Engineering Fellowship, ASU Convocational Speaker Faculty Nomination, ASU Outstanding Software Engineer Faculty Nomination
ORGANIZATIONS: TEDxASU Vice President, ASU Computer Science Club President, SunHacks Hackathon Mentor & Organize, SISE HS Unity 3D Programming Mentor, ASU AME Summer Coding Camp TA, Phoenix Zoo Voluntary Ranger
TALKS: TEDxASU 2018**,** Mesa Public Schools, XR Software Development NASA MSFC

PERSONAL INFORMATION

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EDUCATION

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

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

PUBLICATIONS

"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 Immersive Map-Based Visualizations"
Aashiq Shaikh, Linda Nguyen, **Alireza Bahremand**, Hannah Bartolomea, Frank Liu, Van Nguyen, Derrick Anderson, Robert LiKamWa
Proc. ACM AIVR 2019

"SWISH: A shifting-weight interface of simulated hydrodynamics for haptic perception 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

Programming Languages C, C#, C++, Java, JavaScript, Prolog, Python

Tools and Frameworks Adobe Photoshop/Illustrator/Premiere, ARKit, ARCore, AVRDude, AWS, Blender, Eclipse, Git, Microsoft Mixed Reality ToolKit, NIDAQ, NodeJS, OpenXR, .NET, NVIDIA Flex, React, REST APIs, SteamVR, Unity3D, Visual Studio, Vue, WebXR, XCode

Technologies/Concepts Augmented Reality, Embedded Systems, Multimodal Systems, Virtual Reality, Volumetric Data, UML Design, Web Applications

English (primary).
Farsi (proficient).

2017-Current | Research Assistant

ASU Meteor Studio

- **Research Interests:** Energy-efficient digital-to-physical hybridization of mixed reality environments and perceptual modalities.
- Studying and developing the integration of olfactory sensations for virtual and augmented reality environments.
- Software engineering for multiple virtual and augmented reality systems and applications.

2020-Current | Software Architect

ASU Meteor Studio, ASU Learning Futures Collaboratory, Dreamscape

- Managed and trained a team to develop an educational mobile augmented reality application for ASUâs Biology program and Dreamscape.
- Performed Mixed Reality volumetric filming, mobile AR software development, and framework design for the ASU Fall Virtual Commencement.
- Designed and implemented a web-based virtual reality and desktop Campus Tours framework for ASU LFC.

2020-Current | Independent Contractor

British Standards Institute, Baltu Studios

- Consulting, software evaluation, and software development of virtual reality telecommunications and training software for BSI.
- Unity3D virtual reality and mobile augmented reality software design and development for Baltu Studios.

2018-2020 | Project Manager

ASU Meteor Studio, ASU Interplanetary Initiative, TEDxASU

- Managed portfolio and budgeting of various projects from multiple university departments (Art, Space, Engineering).
- Assisted in interviewing/recruitment of 20+ students, 8 speakers, and securing ASU Gammage Theater as venue for largest TEDxASU event.
- Trained multiple students from various university departments to develop VR/AR applications using Unity3D.

2019 | XR Software Engineer Intern

NASA

- Developing XR applications for visualizing and interacting with complex CAD models and Mars habitats in VR using Unity3D.
- Documenting and developing VR software frameworks to reduce cost and time for production of VR training simulations.

2016-2018 | Undergraduate Teaching Assistant

ASU

- Wrote in-class assignments for 10 units of SER334: Operating Systems and Networks.
- Lead online discussion forums for troubleshooting assignments in SER250: Microarchitecture and Computer Architecture.

EXTRACURRICULARS

2017-Current | 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.

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

- Mentored high-school student, Alec Gonzales, to achieve a publication and place in the AZ regional science fair.
- Designed workshops and tutorials for high-school summer coding camp.

TALKS

2018-20 - XR Software Development, *ASU*

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*