Ben Crystal

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Professional Experience

Major League Baseball (Creative Technologist)   2022 - 2024
- Developed and provided technical and artistic consultation for the MLB Next mobile AR platform, reaching 10,000+ iOS/Android users at flagship events
- Optimized performance and user experience for MLB VR and Home Run Derby VR through cross-team collaboration
- Implemented cross-platform XR experiences integrating physical computing and custom hardware interfaces
- Partnered with stakeholders from Google, Unity, and T-Mobile to deploy high impact, branded AR experiences digitally and in-person at the All-Star Game, Home Run Derby, and World Series

NYU XR and Audio Labs (Research and Teaching Assistant)   2020 - 2022
- Mentored 20+ graduate students designing digital and electronic instruments through a variety of mediums, primarily AR and VR
- Designed and taught course on audio interaction design with a focus on immersive audio including lecture materials and lab exercises
- Developed technical curriculum surrounding NYU's audio and synth labs
- Led interactive exhibition at Federal Hall, maintaining multiple XR installations and managing 12+ docents

Selected Technical Projects

XR Live Music Performance Space (Independent Developer, NYU Graduate Thesis)   2020 - Present
- Developed 6+ unique XR music tools across Apple Vision Pro, Meta Quest, and WebXR using Unity and native SDKs
- Designed gesture and eye tracking interfaces for accessible and intuitive performances using computer vision
- Architected real-time motion control systems using OSC protocols and computer vision
- Implemented real-time audio processing pipeline with Ableton Live and reactive visualizations

Vocal Synthesizer (Founder, Technical Lead, UVM Honors Thesis)   2018 - 2019
- Architected polyphonic vocal harmony generator using phase vocoder-based custom DSP algorithm in C++
- Integrated a Raspberry Pi, Arduino (ESP32), and custom circuit for an intuitive, wireless, near real-time performance
- Led and managed 4-person engineering team through UVM and NSF-funded development cycles

Education

New York University (M.S. in Integrated Digital Media (4.0 GPA))   2020 - 2022
University of Vermont (B.S. in Electrical Engineering, Honors College (3.5 GPA)) 2015 - 2019

Software and Technical Skills

XR and 3D
  Unity, Unreal Engine, Lens Studio, Blender, Reality Composer Pro, Meta Quest, Apple Vision Pro, WebXR

Programming
  C#, Swift, Python, C, C++, Git, Cursor

Creative Tools
  Ableton Live, Logic Pro, Pro Tools, Max MSP, Wwise, FMOD, Touch Designer, Figma, Adobe Suite

Additional Information

Honors: NSF I-CORPS Grant, UVM SURF Grant, Presidential Scholarship, Honors College President
Activities: YouTube Creator, Music Production, SAE Formula Hybrid, IEEE, Onewheel Racing