

# XUELONG MU

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## EDUCATION

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### Columbia University - School of Engineering and Applied Science

2018

B.S., Mechanical Engineering (GPA 3.9/4.0)

Honors: Cum Laude, Tau Beta Pi, Pi Tau Sigma, Mechanical Engineering Department Certificate of Merit

## WORK EXPERIENCE

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### Undercover Games

June 2020 - Present

*Gameplay Programmer*

*Remote*

- Developing [Shadowtales](#), a multiplayer Action RPG, in UE4. Responsible for all programming including gameplay, networking, and UI.
  - Created replicated magic and melee combat system with Gameplay Ability System (used in Fortnite).
  - Integrated Steam networking features including session list, hosting/joining sessions, waiting lobby, and round-based matches.
  - Clean UI with leaderboard, damage + debuff indicators, spell availability icons, and health/mana bars.
  - Managing version control with Git + LFS hosted on GitLab.

### New Reality Co.

February 2021 - Present

*Software Engineer (Freelance)*

*Remote*

- Developing Rainforest, an Unreal Engine AR experience on HoloLens 2 from the creators of Giant VR and Tree VR. Implementing core features, optimizing performance, and managing file organization.
  - Tested and integrated Holographic Streaming to offload rendering work from the HoloLens device to a PC.
  - Integrating real-time geospatial data including deforestation, wildfires, plantations, and gold mines to illustrate environmental threats.

### Radical Motion

August - September 2020

*Software Engineer (Freelance)*

*Remote*

- Developed Unreal Engine LiveLink integration in C/C++ to stream real-time animation data to the UE4 editor. This is a core product feature in Radical Studio.

### Voodoo Manufacturing

November 2019 - June 2020

*Robotics Engineer (Contract)*

*New York, NY*

- Developed ROS C++ robotics platform for trimming dental clear aligners with submillimeter precision.
  - Responsible for all software, including path planning for smooth and accurate cutting profile, calibrating robot workspace/end effectors, digital I/O for controlling suction mount and drill spindle, and WebSockets cloud integration to larger factory OS.
  - Cut trimming cell cycle time by three-fold.

### DMC, Inc.

June 2018 - November 2019

*Systems Engineer*

*New York, NY*

- Responsible for system design, software programming, and onsite commissioning for engineering projects in a variety of industries at a consultancy firm. Selected projects:
- Desktop application for controlling a torque wrench calibration machine (C#/.NET)
  - Complete rewrite of legacy control software; implemented modern UI/UX from in-house designer.
  - Owned the EF6/SQL backend for storing system settings, test results, and user permissions.
  - Automated PDF generation of ISO-compliant calibration certificates, replacing tedious Excel work.

- Mobile application for automated pressure testing with Bluetooth hardware (React Native for iOS/Android)
  - Implemented screens, navigation, testing flow, and PDF generation of test results.
  - Used as a handheld, low-cost solution for testing pipeline pressure on offshore oil rigs.
- Desktop application for End-of-Line dimensional verification station for auto industry (LabVIEW)
  - Responsible for backend architecture, UI, testing flow, results storage, and tolerance calculation.
  - Tested and verified completed system during onsite commissioning at client facility.
- Desktop application for End-of-Line electric vehicle battery testing (LabVIEW)
  - Developed a flexible and modular logging system that stores test results, grades their success, and saves them to a cloud database via a RESTful API.
  - Tested and verified completed system during onsite commissioning at client facility.

### **Columbia University Robotics Group**

*Research Assistant*

September - December 2017

*New York, NY*

- Integrated an Alexa skill into a ROS robotics platform to control an assistive robot arm. Designed to enable patients with disabilities to grasp and move nearby objects.

### **Voodoo Manufacturing**

*Engineering Intern*

May - August 2017

*New York, NY*

- Developed ROS robotics platform to perform vision-based pick and place with millimeter-level accuracy, to autonomously operate a cell of 3D printers without prior calibration of printer positions.
- Designed and fabricated a cart storage system for glass plates using 3D printed parts.

## **ADDITIONAL PROJECTS**

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### **Physics-Based Side Scroller Camera**

*Programmer*

Created a 2.5D sidescroller camera system based on collision probes and blocking volumes. Published as a code plugin on the Unreal Marketplace.

### **Dorm Room Fever**

*Programmer*

Developed a first-person adventure/stealth game for the Unreal 2020 MegaJam. Programmed all aspects including AI, stealth, dialogue, inventory, interaction, and UI.

### **Antifreeze**

*Programmer*

Developed a first-person movement puzzler for the five-day Unreal Engine Spring 2020 Game Jam. Developed gameplay features, level design, and sound design.

### **Pulled Over**

*Writer, Director*

Wrote and directed a 360-degree VR short film that follows four high school students who get pulled over on their way home from school. Developed post-production workflow to clean up visuals in Mocha Pro and process ambisonic spatial audio in Facebook Spatial Workstation.

### **Healios**

*Project Lead*

Managed a team of developers to prototype an accessible, high-quality mental health care service for natural disaster victims, using AI to streamline the onboarding and triage process. Named a Global Finalist in the 2019 IBM Call for Code Global Challenge (4th out of 5000+ entries).

## SKILLS

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<b>Languages</b>	C++, C#, Java, Python, Javascript, HTML/CSS, Bash, SQL, MATLAB
<b>Frameworks</b>	Unreal Engine, .NET, ROS, Entity Framework, React Native, Flask
<b>Unreal Engine</b>	Networking, GAS, UMG, Blueprints, AI/Behavior Trees, Anim Graph, Profiler, VR UI/Locomotion, Materials, RenderDoc
<b>Version Control</b>	Perforce, Git, Git-LFS, SVN
<b>Project Management</b>	Agile, Kanban, scope management, technical sales, leadership, public speaking