

# 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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### Pending Kill

June 2020 - Present

*Gameplay Programmer*

*New York, NY*

- Creating indie games in Unreal Engine in collaboration with a technical artist. Currently developing several projects including a multiplayer action RPG, a physics-based 3D platformer, and a 2.5D sci-fi Metroidvania.
- Uploading quality educational game dev tutorials on YouTube. Topics covered so far include material shader animation, instanced static meshes, randomized material instances, animation retargeting, health/damage systems, and saving/loading game from slot. Our approach emphasizes strong conceptual understanding, best coding practices, and optimizing performance through profiling.

### Radical Motion

August - September 2020

*Software Engineer (Contract)*

*New York, NY*

- Developed Unreal Engine LiveLink integration to stream real-time animation data to UE4 editor session. Created documentation and tutorial videos.

### 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 projects in a variety of industries at an engineering 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: iOS/Android)
  - Responsible for implementing 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 users 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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**Action RPG Prototype**  
*Programmer*

September 2020 - Present

Developing a multiplayer action RPG prototype with UE4, Steam networking, and the Gameplay Ability System (used in Fortnite and Paragon). Features fast-paced, match-based gameplay where the player chooses classes with different elemental magic abilities. Responsible for all programming aspects.

**Antifreeze**  
*Programmer*

June 2020

Developed a first-person movement puzzler with a team of two other developers for the Unreal Engine Spring Jam, a five-day game jam. Responsible for environmental interaction, projectiles, level design, and sound design.

**Healios**  
*Project Lead*

June - September 2019

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).

## TECHNICAL 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>Project Management</b>	Agile, Kanban, managing scope, client-facing interactions, technical sales
<b>DCC Software</b>	Davinci Resolve/Fusion/Fairlight, Premiere, SolidWorks, Fusion 360
<b>UE4 Development</b>	Networking, GAS, UMG, AI Behavior Trees, Animation, VR, Blueprints, Profiler