

HIGHLIGHTS

- **Graphics:** 3D Animation, VFX, Simulation, Rendering
- **Engineering:** Computational Physics, Digital Systems
- **Design:** UCD, Agile Development, Rapid Prototyping
- **Software:** OOP, Mobile, Web, Machine Intelligence

SKILLS

- **Tools:** Houdini, Unity, Blender, Maya, Qt, Linux, Git, Processing, Photoshop
- **Languages:** C++, Python, GLSL, VEX, C#, Java, MATLAB, JavaScript, HTML

PROFESSIONAL EXPERIENCES

3D Software Developer, SideFX

Fall 2017, Summer 2018

- Architected a **material-based pre-fracturing** toolkit for **Houdini H17**, using advanced fracturing techniques that enable artists to **realistically fracture geometries** based on concrete, glass or wood.
- **Redesigned the simulation workflow**, using a modularized structure, allowing artists to **efficiently manage constraints** for heterogenous setups, and **art direct destruction using painting mechanisms**.
- Developed a **FACS-based facial auto rigging system** for Houdini H17, adaptable to **bones, blend shapes and motion-capture driven animations**, while easily transferable to other characters.

Technical Director, Tangent Animation

Fall 2015, Summer 2017

- Developed a **Blender-integrated character GUI** using **PyOpenGL**, allowing riggers to create **templated character pickers**, and animators to animate using **viewport-based interactions**.
- Improved the **rigging, layout and animation workflow** by building Blender tools such as **custom scene outliner**, **dynamic constraint tools**, and various **character/rigging utilities**.

Associate Software Developer, Electronic Arts

Winter 2017

- Integrated new **in-game features** and **user data collection tools** for Plants vs. Zombies' live service team, along with systematic improvements to the **game engine (Frostbite) and server**.

PERSONAL / ACADEMIC PROJECTS

Cloth Simulation, MATLAB, wuwayne.com/clothsim

Winter 2018

- Implemented **cloth simulation** in MATLAB to examine computational techniques used in CG.
- Explored various **numerical methods** used to solve the system including both explicit and implicit numerical integrations, as well as techniques to validate and approximate the model.

Shallow Water, WebGL, wuwayne.com/shallowwater

Fall 2017

- Simulated a modified **shallow water** model using **GPGPU in WebGL**.
- Implemented **ray marching algorithms** for rendering with **refraction and caustics** of water.
- Added all support for **camera movement** and **web interactions** in **JavaScript**.

Sketchbook, OpenGL, wuwayne.com/sketchbook

Winter 2018

- Crafted **2D/3D renders with OpenGL** applying various **rendering techniques**.
- Voted as the best drawings in class in all competitive opportunities, receiving 100% in grades.

EDUCATION

University of Waterloo, Waterloo, Ontario

GPA: 3.9

Bachelor of Applied Science, Honours Systems Design Engineering, 2019

- Exchange student at the National University of Singapore 2018
- W.W King Exchange Fellowship 2018
- Engineering Faculty/Staff Upper Year Scholarship 2018
- Dean's Honour List 2015-2017
- President's Scholarship 2015

REFERENCES

- Mike Lyndon – mikel@sidefx.com
- Brian Foster – brian.foster@tangent-animation.com

VOLUNTEER

- SIGGRAPH 2018 SV

LANGUAGES

- English (Native)
- Chinese (Native)
- French (Professional)
- Japanese (Beginner)

HOBBIES

- Bartending
- Cinematography