

# Radium (Lei Zhang)

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## Education

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**Georgia Institute of Technology**, Atlanta, GA *M.S. in Computer Science & Qua Comp Fin*, Expected: May 2025

- Relevant Coursework: Human-Computer Interaction, Design of Online Communities, Prototyping Interactive Systems.

**University of Minnesota, Twin Cities**, Minneapolis, MN

*B.S. in Computer Science & Mathematics*, 2021

- Relevant Coursework: Data Structures, Algorithms, Database Systems, Computer Graphics, Operating Systems.

## Skills

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**Programming Languages:** C++/C, Java, Python, Lua, Javascript, HTML/CSS, Julia, Matlab

**Frameworks/Libraries:** TensorFlow, PyTorch, Julia Flux, React, Vue, Flask, Node JS, Django, AWS

**Game Development & Graphics:** UE4, Unity3D, Godot, OpenGL, UGUI

**Databases:** TiSpark, SQL, SQLite3, NoSQL (Google Firebase)

**Machine Learning:** DNN, CNN, RNN, neural ODE, transformers

**Reinforcement Learning:** Policy gradients, differentiable programming, deep Q, Markov processes

## Work Experience

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**Tencent Technology (Shenzhen) Co., Ltd. - Game Developer** Shenzhen, China June 2021–April 2023

- Spearheaded the rapid development of "Free Casonry", an award-winning mobile game, in just 15 days.
- Pioneered Lamborghini/Maserati Series IP integration for **PUBG Mobile**, enhancing user engagement.
- Revolutionized design workflow with a Unity3D/UE4 Plugin, boosting efficiency by 300%.
- Championed cross-departmental projects, achieving significant CPU consumption reduction through algorithm optimization.

**Hangzhou Tonghui Technology Co., Ltd. - SDE Intern** Hangzhou, China Oct. 2019–May 2021

- Developed VR/AR interaction scenarios using Kinect, offering personalized rehabilitation solutions.
- Utilized UGUI, SQLite3, and XCharts for data visualization, streamlining patient management.
- Collaborated with medical professionals to integrate kinematic data for patient assessment.

**Hangzhou Yunji Co., Ltd. - HRM IT Support Intern** Hangzhou, China June 2019–Aug. 2019

- Transformed portal system through keen customer behavior insights, elevating user experience.
- Crafted a transparent and intuitive employee management UI using React.

**University of Minnesota, Twin Cities - Undergrad Research Assistant** Minneapolis, MN, USA June 2018–May 2020

- Drove research initiatives under Prof. Daniel F. Keefe, with a spotlight on cutting-edge visualization techniques.
- Engineered tools for immersive visual narratives, seamlessly integrating across diverse platforms.

**PingCap Inc. - SDE Intern** Beijing, China May 2018–Aug. 2018

- Orchestrated the development of TiSpark, a trailblazing hybrid HTAP solution. [GitHub]
- Amplified OLAP capabilities, slashing query response times.
- Spearheaded the Java implementation of TiKV-Client, enhancing system interoperability.

## Projects

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**VR Driving Sim** (Collaborative Project with Cornell Tech) Ongoing

- Innovated in developing a car-drone hybrid system, implementing physics-based controls for seamless transition between modes.
- Enhanced visual fidelity through advanced post-processing techniques, integrating weather effects and holographic displays.

**Audio Visualization** 🎧

- Developed a comprehensive audio visualization system using JavaScript.
- Implemented real-time audio parsing using WebAudio API and dynamic visual rendering with Canvas.
- Applied Fourier transform for waveform decomposition and utilized advanced sampling techniques.

**Glass Material Rendering in Unity3D** 🎮

- Engineered a low-cost, real-time glass rendering solution for Unity3D.
- Achieved realistic reflection and refraction effects using MatCap textures and custom shaders.
- Addressed computational challenges for real-time rendering on resource-constrained devices.

**UI Reconstruction Tool** 🎨

- Designed a tool to automate UI reconstruction from Photoshop designs to Unity3D and Unreal Engine.
- Streamlined the conversion process, reducing manual labor and enhancing efficiency in UI development.

**VR-based Rehabilitation System** 🎮

- Developed a VR system for rehabilitation training tailored for neurological disorders.
- Integrated multi-sensory data channel stimulation for effective task-oriented self-rehabilitation.
- Personalized training plans using kinematic and physiological data matching.

## Memberships & Affiliations

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- **Georgia Tech Graduate SWE (Society of Women Engineers)**
- Grace Hopper Celebration (GHC) 2023
- Rewriting the Code (RTC)