Maxwell Schneider

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ABOUT

I am a passionate software developer with a love for solving novel and complex problems. My diverse academic background has equipped me with theoretical skills in creative problem-solving as well as practical skills in producing robust software that serves a real-world function. I am a motivated learner and I take pride in continually improving and perfecting my craft.

EDUCATION

University of Georgia — Athens, GA
M.S. Computer Science — *2024 – Expected 2026*

University of Georgia — Athens, GA
B.S. Computer Science, B.S. Mathematics (3.89 GPA) — *2019 – 2023*

EXPERIENCE

Graduate Teacher Assistant — 2024 – present
University of Georgia — *Athens, GA*
- Graded assignments for the university's undergraduate data science course (CSCI 3360)

Undergraduate Research Assistant — 2020 – 2021
University of Georgia — *Athens, GA*
- Collaborated with Dr. Weiwei Hu to define a metric of "mixedness" on a given RGB image
- Implemented an algorithm in C++ to compute the optimal scrambling of an input image under this metric that we formulated, by optimizing the parameters of a transport equation that we designed
- Utilized the OpenCV C++ API to produce video renderings of the image being mixed under these optimal parameters

PUBLICATIONS

- M. Just and M. Schneider, On a divisor of the central binomial coefficient, *Ramanujan Journal* (2021).
- M. Schneider and R. Schneider, Sequentially congruent partitions and related bijections, *Annals of Combinatorics* (2019).

PROJECTS

Lax Programming Language | *C++, CMake*
- Designed a portable, cross platform compile-once-run-anywhere language that utilizes a novel type of generalized pattern matching that allows the user to define their own syntactical rules, thus providing a high degree of flexibility and creative expression
- Implemented automatic type inference and function templating, thus achieving a dynamically typed "feel" despite the language being statically typed
- Developed a compiler and virtual machine from the ground up in pure C++, with a custom bytecode format

SmartGL Graphics Library | *C++, OpenGL, Assimp, Bullet Physics, FreeType*
- Developed a cross-platform OpenGL-based graphics library designed to (1) streamline and simplify the workflow of developing OpenGL graphics projects, and (2) provide easy-to-use high-level functionalities that are commonly desired among graphics developers
- Implemented support for model loading, physically-based rendering, shadow mapping, physics integration, custom model shader integration, and more

CNN Visualizer | *Python, PyTorch*
- Developed a tool designed to visualize the types of features detected by different layers of a convolutional neural network, by producing images designed to maximize the activation of particular kernels
- Implemented the ability to modify existing images or generate images from scratch, with many parameters that can be tweaked in order to diversify the style of the output images

TECHNICAL SKILLS

Languages (Experienced): C/C++, Java, Python
Languages (Proficient): SQL (MySQL), JavaScript, HTML, CSS
Frameworks/ Libraries (Experienced): OpenGL, SLJIT, NumPy, PyTorch, Matplotlib
Frameworks/ Libraries (Proficient): React, Next.js, Node.js, Pandas, Tensorflow
Developer Tools (Experienced): Git, CMake, GCC, MSVC, VS Code, Visual Studio, Bash