Anders Carlsson

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Education

University of Wisconsin–Madison — Madison, WI
B.S. Computer Sciences, B.S. Mathematics — *Sep. 2018 – May 2022*

- GPA: 3.91/4.00
- Awards: Accepted into CS & School Honors Program; Dean's List 4/4 semesters

Experience

Software Engineering Intern — McLean, VA
Capital One — *June 2021 – Aug. 2021*

- Incoming summer software engineering intern

Undergraduate Research Assistant — Madison, WI
UW–Madison Machine Learning/Systems Group — *Aug. 2020 – Present*

- Researching and designing graph embedding systems built in C++ and PyTorch that quickly encode complex network features into latent vectors which can then be used in a variety of downstream graph analytic/machine learning tasks

Data Programmer — Madison, WI
Alzheimer's Disease Research Center — *Feb. 2019 – Present*

- Developed programs using R, Python, and MySQL to systematically clean and transfer the thousands of biomedical data points of 1000+ study participants from regional REDCap database to the national center for use by researchers to better identify factors contributing to Alzheimer's disease
- Overhauled existing data collection and upload system by automating manual processes through scripting, reducing time of data entry, error detection, and form generation tasks from hours/days to seconds
- Synchronized regional and national centers by ridding the databases of thousands of discrepancies through development of cross-checking system in R and REDCap API

Projects

Ray Tracer | *C++*

- Implemented path tracing image renderer in C++ based on Nvidia course *Introduction to Real-Time Ray Tracing* which generates realistically lit scenes of geometric objects using a recursive ray color sampling algorithm with anti-aliasing and physically based light interactions with metal, glass, and diffuse materials

MathPlant | *Java, Swing, AWT*

- Simulated 2D vine plant which grows and interacts with soil, light, and trellis in shape of math function
- Parses user inputted math function using Shunting-yard algorithm to generate trellis

Nature Video Twitter Bot | *Python, Google Cloud Platform, FFmpeg, Twitter API*

- Developed Twitter bot which tweets randomly generated clips of nature documentaries with follower-requested songs played in background (*@naturevibesbot*)

Hackathons

Roll for Hacking | *Python, OpenCV* — *Aug. 7-9, 2020*

- Developed a computer vision technique with OpenCV to determine the result of a rolled die based on live video input with variable lighting

MadHacks Carbon | *Python, Twitter API* — *Oct. 19-20, 2019*

- Developed Twitter bot with Python and Twitter API that retweets articles and tweets relating to endangered animals and environment through animal likeness (*@bot_chimp*)
- Organically grew to average 200K+ tweet impressions per month

Technical Skills

Languages: Python, Java, R, C/C++, JavaScript, HTML/CSS
OS: Linux, Windows, macOS
Developer Tools: Git, Bash, Jupyter, GCP, VS Code, Visual Studio, XCode, Eclipse, RStudio
Libraries: pandas, NumPy, Matplotlib