Kristian Mischke

Junior Programmer

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Problem-solver and thinker with just over four years of experience in the industry. I enjoy video game development and am passionate about education and (computational) linguistics.

Experience

Data Science Research Intern **March 2021 – Present**
RedShred LLC, Baltimore, MD

- Achieved .909 median f1-score with fine-tuned *BERT* and *RoBerta* transformer models on email title classification task, which outperformed the 0.78 of simpler ML models.
- Used Label Studio to quickly annotate documents for custom datasets involving CV document segmentation and text *NER extraction*.

Junior Programmer **Jan 2018 – Present**
Mohawk Games LLC, Baltimore, MD

- Integrated *mod.io API* into Old World; added support for modding game assets with AssetBundles; and support for Translation mods.
- Developed a Text Manager class integrating Mohawk's localization system with hierarchical text generation (e.g. bullet and comma list building)
- Implemented the in-game "Event Browser" tool in Old World that allows designers and writers to easily modify and create XML files for in-game events.
- Worked on making Old World ready for localization.
- Wrote a tool for Material Property Management. Allows for the tagging of Material files, and one-click updating of the out-of-sync properties of those objects.
- Wrote a Unity tool for Asset Management that allows developers to observe the dependency relations of Unity assets.
- Used JIRA task management and Perforce version control and merged changes in a large repo.

Quality Assurance Tester **Jun 2017 – Jan 2018**

- Discovered and reported bugs to the developers & repaired bugs in Unity 3D and C# within skill set.

Education

University of Maryland, Baltimore County (UMBC) **Expected May 2021**
Pursuing a B.S. in Computer Science with a focus in Game Development and a Minor in Applied Linguistics.

- 3.936 GPA Outstanding Senior in Computer Science

Projects

Lead Designer, Programmer **Spring 2021**
Recurring Moment

- Time-travel puzzle platformer video game. Game mechanics are inspired by the feature film Primer (2004). Game developed in Unity 3D and C#. Alpha demoed at URCAD 2021.
- Conceptualized, Pitched, and Prototyped original idea during the first 3 weeks of class.
- Acted as Lead Designer and interfaced with the Art & Programming teams at weekly meetings.
- Implemented core mechanics and sparse data structures to store time-travel data.

Programmer **Spring 2021**
GroupFormer

- Webapp for coordinating and forming people into groups. Developed for the CMSC 447 class.
- Developed front-end form for setting up the GroupFormer project using Django, HTML, and JQuery.
- Collaborated with teammates to develop algorithm for scoring participant groupings.
- Integrated Django authentication to secure instructor's forms.

Applying the Cascaded Finite State Grammar Induction Model to Trading Card Game Corpora **Fall 2020**

CMSC 473 Intro to NLP Class @ UMBC

- Proposed the original idea for this final group project.
- Implemented–with a group of 3 peers–a *Grammar Induction* algorithm in Python from an academic paper that uses a cascaded chunking algorithm with *HMMs*.
- We analyzed model performance using perplexity, and we applied it to Trading Card Games like *Magic: the Gathering*, *Yu-Gi-Oh!* and others.

Linux Chess Kernel Module **Spring 2020**

CMSC 421 Operating Systems Class @ UMBC

- Implemented the device module in the C programming language to store and manage chess game state across multiple file pointers; with the option to play against an AI opponent using the min-max with alpha-beta pruning algorithm.
- Only student out of the three sections of the course to complete all the extra credit and be eligible for the course-wide tournament.

Other Note-Worthy Classes from UMBC

- *Computer Graphics* (Spring 2020) Implemented *ray-tracing* algorithm in C++. Used shaders and GLEW and GLSL to push vertices to the render pipeline. We used Git version control to track progress.
- *Graphics for Games* (Fall 2020). Navigated the Unreal Engine C++ source code. Projects focused on implementing graphics algorithms as Blueprints, Plugins, and Engine modifications.

Schess: A Chess Battle-Royal Variant **Aug 2020 – Present**

schessgame.com

- Acted as the Lead Programmer during a 48-hour game jam with three other friends.
- Responsible for game-logic, and networking code using Remote Procedure Calls (RPCs) with *Photon Unity Networking (PUN)* in the Unity 3D game engine.

Drag'n'Drop Coding Website **June 2017 – May 2018**

- Created website to showcase my educational programming videos
- Website had a *Django* backend API and a *React JS* front-end interface.

Volunteer Work & Clubs

Keeping Blessing Hill Website **2018 – 2019**

- Created keepingblessinghill.com using *Jekyll* & GitHub pages for my grandmother's blog to promote her book.

Programming HS Volunteer Tutor **2018 – 2020 School Years**

Crossroads Homeschool CO-OP

- Developed curriculum based off the book *Learning Processing* by Daniel Shiffman.
- Lead class discussions with PowerPoints & live coding and organized labs to enforce problem solving and debugging skills.

Scratch Programming MS Volunteer Tutor **2016 – 2020 School Years**

Crossroads Homeschool CO-OP

- Taught 7 to 12 students about variables, program flow, and basic problem-solving using MIT's programming language called *Scratch*.
- Integrated my YouTube video tutorials for individualized instruction for the 2018-2020 School Years.

Club Member & Project Lead Programmer **Fall 2018 – Fall 2019**

UMBC Game Developers Club umbcgamedev.com

- Participated in club meetings, events, and game jams
- Acted as Lead Programmer for *Role Playing Gamble*, one of the club 2018-2019 games.
- Managed tasks with a group of 2 other programmers throughout the duration of the project, using Git for versioning & merging and Unity 3D & C# technologies for development.