

Markian V. Hromiak

markian.hromiak@yahoo.com

(239) 258-2517

<https://mhromiak.github.io>

EDUCATION

Georgia Institute of Technology, Atlanta, GA

- Bachelor of Science in Computer Science

Graduated December 2020
Cumulative Major GPA 3.50

- Master of Science in Computer Science, Concentration in Interactive Intelligence

January 2023 – Present
Cumulative Major GPA 4.00

WORK EXPERIENCE

Software Engineer II – Mastercard

February 2022 – Present

- Led team knowledge transfer seminars to guide a new team on software documentation practices and Spring/Springboot/REST, resulting in a 40% increase in iteration point delivery compared to prior measures
- Successfully led the post-production handoff of a high-visibility product after contributing to monitor dashboard and alert setup, resulting in no issues with application uptime
- Worked with several external teams to develop a distributed, Kafka-based publisher-subscriber application, allowing Mastercard to scale from terabytes to petabytes of quickly transferrable data
- Demonstrated programming flexibility by adapting existing software to accommodate a core architectural design pivot on short notice without sacrificing timeline
- Regularly led functional demonstrations of several flagship projects' progresses to peer department teams, managers, vice-presidents and product owners
- Mentored junior members on software design philosophies and their application to current projects, resulting in cleaner, dryer code and a doubling in iteration point capacity
- Automated application deployment to all environments using Chef Habitat, Jenkins, XLR and HashiVault, reducing human error, cutting deployment times by 50%, and enabling configuration changes without sacrificing app uptime
- Researched and implemented POCs on production silent testing, dashboard promotion automation and deep application health checks, resulting in increased application resiliency
- Isolated sources of high performance testing latencies and propagated changes through production environments

Software Engineer I – Mastercard

February 2021 – February 2022

- Elaborated and continuously integrated production features using development tools such as SQL, Splunk, Java, Jenkins and PCF
- Manager Intern Mentorship through onboarding, Agile methodology, object-oriented programming principles, cross-team collaboration practices and further company engagement opportunities, resulting in talent acquisition
- Initiated collaboration with senior mentors to expand metrics gathering and analysis across a core plugin architecture
- Created an efficient, open-source, cross-platform acronym dictionary onboarding CLI tool available company-wide as an effort to reduce the amount of time spent searching for acronym definitions
- Documented critical procedures on security certificate creation, billing service encryption and XOM key addition
- Created Splunk alerts, reports and dashboard for use including product failure tracking, customer statistics gathering and system health metrics
- Rapidly learned development frameworks while working as a member of a geographically distributed team

TITANS Software Engineering Intern – Sandia National Laboratories

May 2020 – August 2020

- Designed an application-layer noisy channel module to empirically compare forward error correction implementations
- Constructed a pipeline algorithm for reliable file transfer over an unreliable simplex channel
- Optimized algorithm performance through test-driven development and memory profiling

Teaching Assistant – Georgia Institute of Technology

August 2019 – December 2019

- Educated students on object-centered software design principles and version control
- Guided students through application construction following GRASP and SOLID principles

- Taught a seminar on RESTful APIs, HTTP/web service applications and software design principles

Software Engineering Intern – Edward Jones

May 2019 – August 2019

- Constructed RESTful, front-end API microservices for an AGILE, multi-platform UI enterprise application
- Collaborated in scrum meetings and AGILE training/research to aid in a firm-wide Waterfall-to-AGILE transition
- Utilized test-driven-development practices to create modular, SOLID code
- Fully integrated features through Jenkins and Kubernetes

PROJECTS (* is repo available upon request)

Replication of Sutton's TD(λ) Results

Spring 2023

- Peer-reviewed and replicated all experiments in *Learning to Predict by the Methods of Temporal Difference*
- Authored an analysis discussing how modern technological advancement could result in divergent replications

Action Classification using Motion History Images and Hu Moments*

Fall 2023

- Created a MHI classification program analyzing the KTH dataset videos for actions
- Compared several classification pipelines' performances based on cutting-edge literature

Raven's Progressive Matrices Intelligence Metric Agent*

Spring 2023

- Designed an AI agent that used dark-pixel heuristics, recorded knowledge, and trend detection to solve abstract reasoning problems with an 80% accuracy on core problems
- Replicated results from existing literature as part of an R&D peer review process to confirm method efficacy

Natural Language Processing Question Answering Agent*

Spring 2023

- Designed a NLP pipeline that stores a corpus of knowledge then referenced to answer questions with 85% accuracy
- Utilized spaCy to perform tokenization, POS processing, stop word removal, POS tagging, and lemmatization

MNIST Custom Neural Network*

Spring 2022

- Implemented a multi-layer neural network from scratch to build mathematic understanding of backpropagation
- Produced 95% classification accuracy on testing set with 76% accuracy on extrapolated examples

Alpha-Beta Pruning Go Bot*

Spring 2022

- Optimized a hybrid Q-learning/ α - β pruning algorithm to play Go against q-learning, α - β and greedy algorithm bots
- Conducted a performance analysis of varying α - β methodologies to properly scale runtime with available resources

Live Face Blurring

December 2020

- Utilized the OpenCV library to create a face blurring application compatible with live video, recordings and images
- Contrasted the efficacy and suitability of HOGs, Haas cascades, DNNs and MTCNNs for live computer vision

Stochastic Chess AI

Fall 2020

- Implemented a Monte-Carlo tree search algorithm to optimize an incomplete-information strategy for 'Fog of War' chess
- Developed in a class team by using a feature-oriented evolutionary programming paradigm

Wasteland Sorting Algorithm*

August 2019 – September 2020

- Drafted and tested an original sorting algorithm against standard sorts, showing superior runtime for large data
- Documented complexity analysis and design procedure using git version control
- Maintainer for an open-source package on PyPI

DrivingForce

January 2018, March 2020

- Designed a hackathon web app to host volunteer organization work opportunities
- Created HTML/CSS interface with Angular5 linked to a Google Firebase database
- Reworked application in Angular9, improving functionality and UI/UX following Evolutionary Prototyping

PUBLICATIONS

A New Charter of Ethics and Rights of Artificial Consciousness in a Human World

- Published as arXiv:2010.12019 on arXiv. Primary author, 8/12/2020

SKILLS

Computer Languages, Libraries, and IDEs:

- Proficient in Python, Java, Bash, Splunk, Springboot, LaTeX, NumPy
- Experience with SQL, Prolog, C/C++, Python Flask, Rust, Jenkins, PCF, Chef Habitat, Docker, Pandas
- Worked in IntelliJ, Eclipse, Spyder, TexStudio, VSCode

Demonstrated Development Skills:

- Experience working in a multi-environment Agile workflow including development, staging, performance testing and production areas
- Able to apply software patterns and testing paradigms such as singleton, publisher-subscriber, and test/behavior-driven development
- Experience with helping develop a roadmap of features for several project iterations
- Can critically examine efforts and lead feature creation and elaboration, story pruning, and development delegation between more junior developers
- Able to quickly learn new languages and frameworks to deliver MVP

RELEVANT COURSEWORK

- Artificial Intelligence, Graduate Design & Analysis of Algorithms, Software Engineering, Reinforcement Learning, Robotics & Path Planning, Computer Vision, Automata and Complexity, Knowledge Based AI & Cognitive Arch

AWARDS AND HONORS

- GT Eta Kappa Nu Honor Society member
- GT 'Make a Difference' Hackathon 2018 – Runner-up
- Georgia Tech Provost Scholar
- Georgia Tech Inventure Prize Competition Semi-Finalist
- University Physics Competition – silver, bronze medals
- IEEE Society Member